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ABSTRACT

Discussed is an experimental demonstration class for children exhibiting severe language disabilities. Staff includes teacher-therapist, classroom aide, psychologist, audiologist, speech and language pathologists, and occupational therapist. A theoretical framework is provided through discussion of phonological, semantic and syntactic aspects of language, and criteria of language development (community living, control of the breath stream, development of an epicritical ear, a monitoring feedback system, and imagery). An inventory of language processes is presented which evaluated semantic, syntactic, auditory, visual, and motor skills, as well as number concepts. Examples are related to illustrate use of diagnostic information in remediation. Explained are general classroom management and teaching techniques such as extreme reduction of auditory stimuli initially and consistent and repetitive linking of experiences and language for those experiences. Specific remedial techniques are suggested for such problems as inability to distinguish two nonverbal sounds, inability to distinguish two inflectional patterns, and inability to distinguish environmental sounds. An illustrative case study of a boy who exhibited impaired language at the phonological, semantic, and syntactic levels is reported. Findings for other students are summarized. (GW)

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HEY!
I GOT
SUMP'N
TO TELL YOU,
AN' IT
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a class
for
children
with
severe
language
disabilities

by Joan L. Monaco
& Elinor L. Zaslou

Montgomery County
Public Schools

ED 001792

September, 1968

Teacher: **Who went?**

Timmy: **Da-ee go!**

June, 1969

Teacher: (*showing a picture*)
Is he eating?

Timmy: **He--is--NOT--ea-in;
he--i'--'mokin--a--pipe!**

May, 1970

Timmy:
**Hey, I got sump'n to tell you,
an' it cool!**



**a class
for children
with severe language disabilities**

by Joan L. Monaco & Elinor L. Zaslou

Montgomery County Public Schools • Rockville, Maryland

Homer O. Elseroad • Superintendent of Schools

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TABLE OF CONTENTS

Preface		vii
Chapter One	<i>How the Class Began</i>	1
Chapter Two	<i>Theoretical Framework</i>	13
Chapter Three	<i>Diagnostic Information</i>	33
Chapter Four	<i>How Diagnostic Information Was Used for Remediation</i>	81
Chapter Five	<i>Classroom Management and Teaching Techniques</i>	95
Chapter Six	<i>Timmy: An Illustrative Case Study</i>	139
Chapter Seven	<i>Results</i>	169
Appendices		
Appendix A	<i>Chronology of the Project</i>	247
Appendix B	<i>People Involved in the Title VI-A Project and Dates of Their Participation</i>	251
Appendix C	<i>Observation Guide</i>	255
Appendix D	<i>Information on Later Classes</i>	260
Appendix E	<i>Hindsight</i>	269
Notes		271
Bibliography		275

PREFACE

"Of the millions of dollars spent on research projects, can we find ten which have had an impact on the education of the handicapped, have led to change in programs for the handicapped, or have contributed a body of knowledge which uses education to maximize opportunities for children?"¹

This book describes one project which did have an impact, did lead to change, and did maximize learning opportunities for children. Before the Title VI-A project, the Montgomery County Public Schools in Maryland (a school system located just outside of Washington, D.C., and serving over 125,000 students) provided little meaningful education for normally hearing, normally intelligent children who had severe language disabilities. As a result of the project, classes for such children became part of the school system's offerings. The extent to which these classes have been successful varies for different children. However, the overall changes in most of the students have been dramatic.

It was Timmy's case that gave the final impetus to the project. Timmy, a child from a rural area of the county, had been receiving speech and language therapy at the Easter Seal Treatment Center in Rockville, Maryland, for three years. Through special arrangement, in 1967 he entered Meadow Hall Elementary School almost across the street from the Easter Seal Center. He attended kindergarten every morning, ate his lunch at school, and then went to his Easter Seal therapy session.

During the year that Timmy was participating in the dual public school-Easter Seal program, a group of Montgomery County Public Schools speech and hearing therapists was discussing possible programs for language-disabled children. Speech therapists had long been detecting children whose language disabilities were too severe to be remediated through therapy sessions alone. Many therapists and teachers believed that such children could probably progress academically if they were taught by someone who understood their language and their learning problems.

The school system had an extensive special education department, with classes and services for children with orthopedic, auditory, visual, mental, and specific learning disabilities. Yet there were no teachers who had all the understandings needed for remediation of severe language disabilities. Title VI-A of the Elementary and Secondary Education Act (P. L. 89-313) was designed to encourage school systems to fill such gaps in their special educational offerings. Therefore, a proposal was written, submitted, amended, and approved.

"The Joint Special Language Class" was a cooperative undertaking of the Montgomery County Public Schools and the Easter Seal Treatment Center of Rockville, Maryland. Its purpose was to find out what would happen to the Timmys of the world if a "teacher-therapist" who understood the dynamics of their language problems could teach them in the classroom, and if they could have specialized daily therapies such as the Easter Seal staff could provide. The project operated for three years and included support for this publication. (See Appendix A for the Chronology.)

ACKNOWLEDGMENTS

Over forty people were directly involved in the Title VI-A project between June, 1968, and June, 1971. (See Appendix B.) Special thanks are due:

Dr. Fred Brown, principal, Meadow Hall Elementary School, and his staff

Mr. William Coviello, supervisor, Title VI-A, Maryland State Department of Education

Mr. William Feddeman (deceased) and Mrs. Helen Kohut, directors, Department for the Planning and Development of Federal and State Programs, Montgomery County Public Schools

Mr. Philip J. Stromowsky, director, Special Education Services, Montgomery County Public Schools

Mrs. Beverly Whitlock, chairman, Speech, Hearing, and
Language Department, Easter Seal Treatment Center, Rock-
ville, Maryland, and her staff

The staff of Montgomery County Public Schools Speech and
Hearing Programs

Chapter 1

Children with language disabilities reveal and sometimes conceal themselves in diverse ways. Teachers may at first think these youngsters do not hear, do not pay attention, or deliberately misbehave.

Melanie, a first grade student, smiled and nodded in agreement, even occasionally wearing an interested expression on her face as the teacher gave directions. But Melanie was desperately trying to sneak glances at other children's work so that she could imitate it. Take the case of Wilbert. Wilbert appeared blank and lethargic, a nonparticipant. The teacher might have suspected retardation, poor nutrition, or emotional problems. Or consider Robbie who was a very bright child who slid by for a few years until inability to read finally prompted deeper investigation. Robbie, a quiet student, a shrewd observer, and a selective participant, had fooled his teachers until mid-second grade. Then there was Norton who was considered to have behavior problems right along. Norton was the show-off, the scoffer, the "I won't-even-try-that-it's-for-babies" kind of boy. He was a boy masking his confusion with bravado. And there was Skip whose speech was so unintelligible it was hard to tell to what extent language was affected.

Yet of all the students in the experimental demonstration class, Timmy was the most easily detected as having a language disability. Timmy was a "classic" case. Alert, eager, immediately likable, Timmy communicated much the way one does when the dentist has one's mouth full of cotton packs, mirror, and probe. Timmy reached out to others with voice, inflection, approximated words, significant eye-movements, and gestures.

How the Class Began



Children with normal language ability go through successive stages of language development. By kindergarten age they can comprehend most of what is said to them. They can remember and internalize significant language patterns and speak meaningfully, using standard though immature speech sounds, vocabulary, word order, and sentence structure. Using their essentially normal language as a tool, they can ask questions which further extend their knowledge and linguistic competence. They can express ideas which bring support, negation, explanation, affection, and the like. Thus, even limited competence promotes further competence and adjustment.

A child with normal hearing and essentially normal intellectual and emotional make-up who fails to develop normal language abilities may comprehend only fragments of what he hears. He may remember and internalize very few reliable language patterns. He may have difficulty organizing thoughts for his own ordering of the environment and expressing thoughts meaningfully to another person. Since he usually cannot ask questions or express ideas which bring satisfactory responses from others, the language-disabled child drops progressively further behind, both intellectually and emotionally. Thus, incompetence fosters incompetence and frustration.

The rationale for the Title VI-A project was that extensive remedial intervention might stabilize a child's linguistic environment so that he could get meaning from what was said to him, remember significant patterns, develop more reliable receptive language, and eventually produce more and more relatively standard communication units. Comprehension followed by meaningful expression would result in appropriate responses being made to the child and ready the cycle again.

Selection of students six to eight years old for the joint special language class required criteria for admission. The staff involved in the project developed the following statements:

A child is eligible for this class if he exhibits disabilities in comprehension and/or retention and/or expression of language

- . which appear to be out of keeping with some other attributes of his functioning
- . which cannot be attributed exclusively to, nor be adequately explained by, environmental deprivation, hearing disability, emotional disturbance, or mental retardation, although the distinctions are difficult to make
- . which are interfering significantly with all learning and can be predicted to cause increasingly greater social and intellectual problems
- . the remediation of which may be expected to result in improved functioning at levels more appropriate to his ultimate ability and adjustment.

Before the selection of children for the second year's program and after consultation with Miss Doris Johnson of Northwestern University's Department of Language Pathology, the above criteria were revised to rule out significantly retarded children. The revised criteria were as follows:

Ability — evidence, on more than one measure, of at least average intellectual potential

Disability — severe problems in comprehension and/or expression of language which seriously interfere with academic functioning

Integrities — essentially normal hearing, vision, and emotional adjustment; background of adequate exposure to a normal language environment

Exclusion of the retarded child was made reluctantly because the staff agreed that retarded children with language disabilities did benefit from the specialized teaching offered in the joint special class. However, the new criteria were adopted because it seemed necessary to give priority to normally intelligent children and to try to prevent their educational retardation. The staff had learned to accept the reality that the child who has

only a language problem and the retarded child with a language problem require different teaching techniques.

Severe language disability in the absence of generalized retardation, hearing loss, or emotional disturbance is generally considered to be a relatively low-incidence handicapping condition. However, the actual incidence of such children in a school population is not known. Statistics on handicapped children usually do not include language disability as a discrete category. For example, the federal government's categories for Title VI-A projects consisted of (1) trainable mentally retarded, (2) educable mentally retarded, (3) hard of hearing, (4) deaf, (5) speech impaired, (6) visually impaired, (7) seriously emotionally disturbed, (8) crippled or orthopedically handicapped, (9) other health impaired (includes learning disabled), and (10) multiply handicapped.¹

Chalfant and Scheffelin state that "Although definitive epidemiological studies have not been conducted, it is generally agreed that there are more children who do not develop language by age 4 than there are children who develop and then lose language performance."² Carhart *et al* found that, "In summary, central communicative disorders of significance plague a large number of Americans. An unknown number of children, but certainly not less than 1,500,000, have disorders due to neurological involvement ranging from retarded speech to learning disabilities involving linguistic processes..."³ Although the number of students fitting the revised criteria might be small, the staff believed their needs to be unique and increasingly disturbing if untreated.

The children finally selected for the first class were not alike. They all had language disabilities, but their language problems were different. Most of the children seemed to have stopped expecting either to understand what was said or to produce something meaningful to others.

Following is a capsule description of the students in the original Title VI-A class September, 1968-June, 1969.

Name and Age at Time of Entrance	Prior Placement	Major Language Characteristics	Length of Stay in Title VI-A Class	Sequel
Jan 7-11	Diagnostic class in public school for moderately retarded children	Failed to grasp symbolic nature of language. Some kernel sentences and transformations used. Rapid speech, frequently unintelligible.	9/68-6/69	Placed in class for mildly retarded children
Melanie 6-11	Regular first grade	Omitted articles, auxiliary verbs, and prepositions; confused word-order. Very few transformations used. Very distractible. Had problems recalling words.	11/68-6/70	Continues in special language class under public school auspices. Integrated for several subjects. Will return to a regular class next school year.
Phil 7-3	Public school class for children with specific learning disabilities	One-word naming. Comprehension more advanced. Severely limited auditory memory span. Symbolic functioning poor.	9/68-6/69	Placed in class for moderately retarded children
Skip 7-8	Public school class for mildly retarded children	Concrete, perseverated usage. Very few kernel sentences. Two-word combinations and constructions used. Usually unintelligible. Did not gesture.	9/68-6/70	Placed in class for children with specific learning disabilities
Timmy 7-2	Public school kindergarten with daily therapy at Easter Seal Center	Elaborate gesture system but almost no kernel sentences or transformations used. Very poor auditory discrimination.	9/68-6/70	Moved out of state. Is presently in regular second grade performing below grade level.
Wilbert 6-10	Public school kindergarten	Difficulty with word meaning; much of output irrelevant. Most transformations used and speech intelligible. Problems with word recall, auditory discrimination, and auditory memory.	9/68-6/70	Continues in the special language class under public school auspices. Integrated for some subjects. Progressing well.

Added to the class, summer session, 1969

Name and Age at Time of Entrance	Prior Placement	Major Language Characteristics	Length of Stay in Title VI-A Class	Sequel
Danny 7-2	Completed regular first grade	Difficulty with word recall. Difficulty associating words with events	6/69- 6/70	Continues in the special language class under pub- lic school auspices
Norton 8-1	Completed regular second grade	Difficulty understanding word meanings and forming con- cepts; word-finding problems	6/69- 6/70	Placed in class for chil- dren with specific learn- ing disabilities; making excellent progress
Patsy 7-1	Completed regular first grade	Difficulty in comprehending auditory information and remembering new words. Short auditory memory. Few transformations used. Artic- ulatory problems	6/69- 6/70	Continues in the special language class under public school auspices
Robbie 8-1	Completed regular second grade	Difficulty semantically with multiple word meanings, con- cept formation, and word re- trieval. Difficulty syntactically with plurals, verb endings, and function words	6/69- 6/70	Regular fourth grade

In order to concentrate on the children's language needs, no attempt was made to conform to a regular school curriculum or even to an adapted curriculum. Developing a sequence of oral language skills had to underpin all academic learning since academics could only become meaningful when language systems had become functional. As language skills developed, material was presented to parallel regular classroom offerings as much as possible.

All aspects of the project were directed to attainment of the following goals:

1. To help children overcome or compensate for severe language disabilities so they could learn and function at levels commensurate with their abilities
2. To develop teaching techniques necessary to such achievement
3. To train more staff to implement successful classroom practices thus developed
4. To demonstrate to all interested staff the specific approaches used to remediate disabilities in all areas of language such as auditory attention, integration, and retention; comprehension; oral expression; reading; writing; and number concepts

The project was not a controlled study. It did not provide comparison between matched students' progress under two or more different conditions. Progress was measured for each child by comparing his behaviors and scores after his attendance with those at the beginning. It is not possible to know how the students might have fared in a different program. However, all of them entered the Title VI-A class with a history of communication and academic problems. Previous experience with such students had demonstrated that, in general, their academic and emotional problems increased rather than decreased the longer they remained in other kinds of classrooms.

Selecting the "right" teacher for the experimental demonstration class was crucial. By training and experience, speech clinicians have more basis for recognizing and treating language disabilities than most regular classroom teachers. Even special education teachers, who traditionally have been given considerable training in treating visual-motor problems and emotional problems of children, seldom have had adequate training for handling language disabilities. A professional classroom teacher with special training and keen interest would no doubt have been able to teach the class. However, it seemed logical to staff the small class with an experienced, perceptive, and very successful speech therapist.

In order to equip herself specifically for her new role as "teacher-therapist," the selected therapist spent a summer of intensive study at Northwestern University where she took courses in Remedial Education for Children with Learning Problems, taught by Miss Doris Johnson; Studies in Childhood Aphasia, taught by Dr. Harold McGrady; and Problems in Language Development and Usage, taught by Mrs. Laura Lee.

The joint special language class began September 2, 1968, in a small classroom in the Meadow Hall Elementary School. The room had been equipped with a one-way mirror and viewing room for observers through the use of Title VI-A funds.

The Easter Seal staff added rich resources to the project. The Chairman of the Speech, Hearing, and Language Department of the Easter Seal Treatment Center (an audiologist by profession), a staff audiologist, two speech and language pathologists, and an occupational therapist (visual-motor specialist would convey her strengths more adequately) gave specified amounts of time and service to the Title VI-A undertaking. They did much of the preliminary and follow-up testing of students. The speech and language clinicians provided daily individual speech and language therapy sessions for each child. The occupational therapist conducted regular therapy sessions on an individual or group basis as needed. All of the Easter Seal personnel contributed to staffings (in-depth reporting and planning for an individual child) and conferences and shared in all decisions regarding the next steps for each student.

The excellent audiological testing equipment and audiologists' skills were not available within the school system. Speech and hearing therapists employed by the schools could have provided the individual language therapy but could not have been scheduled to provide it on the intensive, daily basis as needed. The same was true of the visual-motor training which the school system could not have offered in depth. By purchasing the expert and consistent assistance of the Easter Seal staff, the best possible resources of the community were combined. Nothing that might help was withheld.

Cooperation between school and Easter Seal staffs was total. Close contacts were established and deepened at weekly staff meetings. The project was truly interagency and interdisciplinary. The occupational therapist incorporated the week's linguistic patterns into her directions to the children; the teacher-therapist incorporated the occupational therapist's approaches into her teaching of scissors handling, manuscript writing, and games of skill. Each student had a notebook which he carried daily to and from the Easter Seal Center. In this, the speech and language clinician with whom he worked recorded practice material. These notebooks were reviewed in the classroom every day just before the children left for home. The notebooks were taken home from time to time. Such steady reinforcement paid dividends.

Wednesday staff meetings usually covered some general concerns and then concentrated on one student and his or her progress. A decision to introduce negatives or possessive pronouns or the *is--ing* (present progressive) construction was made only after deliberation of all those working directly with a child.

A part-time psychologist was employed for the project in order to do various kinds of testing, assist staff in understanding individual children and the group dynamics of the class, and assist in conferencing with parents. These functions, too, could all have been performed by a school psychologist but again, because of time and budget constraints, not to the extent necessary to guarantee the range of services each complex case demanded. The psychologist's specialized contributions became a solid part of each staff decision.

The number of students in the class was stipulated in the project proposal to be "six to eight." The original class opened with five children and soon had six. In the summer and thereafter, there were eight children enrolled. Experience proved eight youngsters to be about the minimum needed to maintain group interest and the maximum manageable for therapeutic teaching.

Transportation for the students was provided by the school system. All the students came by school bus except one who lived in the immediate neighborhood. They stayed a full school day (9:00 a.m. - 3:00 p.m.) and worked during that entire time with the exception of an hour's break for lunch and playground activity. There was no "busy work"; there were occasional art and music sessions and during the second year a growing variety of activities. However, the bulk of the day's activities involved structured language practice. When spontaneous language occurred, it was expanded and incorporated in the lesson. Each day the children left exhausted; but it was a triumphant exhaustion, it seemed, involving pride in accomplishment.

A classroom aide was employed the first year to assist the teacher-therapist. She walked with the children to and from the Easter Seal Treatment Center and carried out specific directed activities. During the second year, the assignment of an intern teacher-therapist obviated the need for an aide.

As children developed greater capabilities, they were integrated with regular classes for specific subjects. By the second year, four students were having math in second or third grade classrooms, some were integrated for social studies, and a science teacher made the class a part of his regular responsibilities. Some field trips were taken with other classes.

The spirit of belongingness was fostered by the principal, and successful experiences in the school building became the basis for much of the early language learning. One of the first sentences the students learned to "read" was in the form of a request: "Say hello to Dr. Brown." The reader of this sentence then left the room to find the principal to say hello to him.

At the time of initial identification, the selected students' parents were counseled about the class and its special features and aims and were asked to give written permission for video tapes and other materials about their children to be used for professional training. The teacher-therapist and other appropriate staff, usually the psychologist, had individual late afternoon or evening conferences on a regular basis with each set of parents. These conferences varied in number as the need and availability varied. Two group meetings were quite well attended. Part of Dr. Nancy Wood's consultation in August, 1969, was directed specifically to techniques for deeper involvement of parents.

During the first year, about one hundred people came to the viewing room to observe the class. Many of them returned for second and sometimes third observations. Most of them were speech and hearing therapists, special education teachers, supervisors of special programs, school psychologists, the staff of another federal project involved in diagnostic-prescriptive teaching (Project FOCUS), parents, and school administrators. A profile sheet describing the class in general and the primary language problems of each student in particular was provided each viewer to aid his observation. (See Appendix C.) Whenever possible, the teacher-therapist, the principal, or a member of the Easter Seal staff was available to answer questions. During the second year, when about a hundred more observers came, either the teacher-therapist or her intern could usually leave the classroom and make at least a brief appearance in the viewing room to explain the particular lessons going on at the time.

Title VI-A funds paid salaries for the teacher-therapist, the part-time psychologist, the aide, and later the interns. In addition, these funds provided reimbursement to Easter Seal for services rendered by its staff at their established hourly rates. The one-way mirror, some specialized materials, the video tapes, consultants' services, and some textbooks for workshop use were purchased with Title VI-A funds.

The school system provided housing, some supervision, most equipment and materials, transportation, video taping services, and numerous teachers and specialists who assisted from time to

time as they would for any class. The abundant enthusiasm, spirit, and élan could not have been purchased from any budget.

The second class, started one year after the experimental demonstration class, was located in a different school and not provided with the wealth or intensity of services provided the first class. This was a deliberate move in order to test the workability of the remediation procedures in a more realistic school setting. The second school had more than the usual offerings in that there was a full-time speech and hearing therapist and a nearly full-time physical therapist on its staff because classes for orthopedically handicapped students were also housed there. However, the amount of time these specialists could devote to the language-impaired students for individual language therapy and motor training was far less than the Easter Seal staff provided the first class. The second class, like the first, proved to be of measurable value to the students. (See Appendix D.) Some students gained as much as three years in most aspects of language development measured in an eight-month period. The following year a third class was housed in a regular school with no physical or occupational therapist and a strong but normal speech therapy program. Progress for the students in this third class has been remarkably good.

While the valuable contributions of the Easter Seal staff cannot be stressed enough, it does seem possible to provide a strong remediation program for severely language-disabled children using the normal resources of a school system as long as the class size is kept small and the teacher-therapist is well trained and highly competent.

Chapter 2

This chapter shows the developmental pattern and familiarizes the reader with the language functions and terminology used throughout this book. Examples used are usually based on the language of the Title VI-A students. The reader may find it helpful as an overview and review of the present thinking in this field of study.

A theoretical framework is necessary to explain and to understand what language is, how it is learned, and what constitutes impaired language. The guidelines used in diagnosing and treating the children in the Title VI-A program are described by Lenneberg in *New Directions in the study of Language*.¹

Lenneberg maintains that there are three aspects of language which are common to all languages. They are the *phonological*, the *semantic*, and the *syntactic*. These three aspects are interrelated. However, by describing them separately, the interrelationships can be more clearly seen.

PHONOLOGY

Phonology is the science concerned with the sounds of a language. Some languages may consist of a set of clicks or grunts. More sophisticated languages have more elaborate systems. Consonant sounds are classified according to three basic criteria: (1) the manner of articulation — plosives, fricatives, glides, nasals, laterals, and retroflex; (2) the place of articulation — bilabials, labio dentals, dentals, alveolars, palato-alveolars, palatals, velars, and glottals; and (3) whether the sound is voiced or voiceless.² There are specific rules to govern the sound combinations in any language. In every language there are some combinations of sounds which do not occur in

Theoretical Framework



the same syllable (Brown).³ In English, for example, *MB* cannot occur in speech even though it does occur in writing, as in *comb*.

Linguists study other languages to record the phonemes (all the variations of a sound that do not affect the meaning) and to uncover the rules of phonology for that language. In order to identify the auditory pattern in which one phoneme crosses the boundary into another phoneme, linguists pronounce variations of a phoneme in one particular word and ask a native speaker to identify the point at which the sound change gives the word another meaning.

In English, for example, the linguist might say the word *car* using the variations of what we call a New England accent, the broad *a* of the Midwestern accent, and other regional variations. The listener is asked to tell when the phoneme variation gives a different meaning to the word in which it occurs. In the above example, the New England pronunciation of *car* would be accepted; but raising the vowel to make the word *care* would not be accepted since the boundary of the phoneme would have been crossed.

The structure of the phonemes for any particular language is such that each sound has distinguishing features, and each phoneme is unique. According to Brown the English language has forty-five phonemes.⁴ Some languages have more and others less. Linguists use the International Phonetic Alphabet to record phonemes in a uniform manner.

The phonological aspect of language is the first of the three aspects learned by the developing child. Early investigators of language development in children listened to the sounds made by infants and recorded what they heard. Several developmental steps were noted.

Church theorized that an infant is aware of all stimuli on a global basis.⁵ Sight, sound, and touch *per se* are indistinguishable one from another. The emotion conveyed to the baby as the mother is holding and feeding him is also associated with the speech the mother uses at the time.

As differentiations are made by the infant, finer distinctions can be noted. In the area of sound, speech becomes distinguished from the sounds made by toys and other objects in the environment; but the infant perceives speech not as a collection of sounds but as inflections and melody. A baby begins to imitate these inflections in the form of cooing when he is about two months old.

Sometime between the ages of four and ten months, infants begin to babble. Babbling refers to the use of a consonant plus a vowel. The babbling is not necessarily in the sequence in which it is heard in the adult's speech.

Babies universally draw from the same well of phones (any vowel or consonant, not all of which are incorporated in the child's native tongue). All babies make the same basic sounds regardless of the native tongue of the environment. According to Mowrer, the movements of the articulators (tongue, teeth, lips, jaw, hard palate, soft palate, and alveolar ridge) and the vibrations of the vocal folds are pleasurable to the child, and it is this pleasurable feeling that motivates the child to continue making sounds.⁶ Even deaf children babble. Lenneberg maintains that children universally begin to coo at the same age and later to babble at the same age.⁷

Susan Erwin reports Roman Jakobson's theory that the development of the sound system is a series of *contrast differentiations* between features that are maximally different.⁸ The first contrast is the vowel-consonant difference; the second is a stop-nonstop contrast; the third is the voiced-voiceless contrast. According to this theory, visual contrasts help the child learn some sound contrasts; labials are contrasted to nonlabials.

Dorothea McCarthy notes that M. M. Lewis feels that at about two months of age the baby makes phonemes associated with pleasure and other phonemes associated with discomfort.⁹ The muscles in the posterior of the oral cavity are used for swallowing and belching and are associated with pleasant sensations, hence the use of back vowels and guttural consonants (*ū, ō, g, k, ā, ū*). The lips and alveolar ridge are

associated with hunger and crying; thus, labial sounds (*b,p,m*,) are associated with the discomfort preceding sucking and eating.

At about eleven months of age, babies begin to imitate and achieve close approximation of what models have said to them. If the mother says, "baby" the baby repeats, "baby." The phonemes are repeated in the same order that the model used. The preservation of sequence marks the beginning of the learning of real words. For a child to imitate spoken sounds, essentially normal hearing is required.

Consider the integrities that are needed for phonological development. Ample hearing and sight are needed to make the basic associations between environmental noises and the objects producing them and between the voices of people and the people themselves. A healthy emotional environment is also needed to establish a positive relationship between speech and the people in the environment and to reinforce cooing and babbling.

To imitate spoken sounds, more complex integrities are needed. Sounds must be discriminated, normally using both visual and auditory channels. *Mama* does not look nor sound like *Dada*. The child then needs an attention span of sufficient length to notice and attend to the person providing the stimulus and to be aware of the sounds the person is making as contrasted to all the noise and other sounds in the background. Adequate control over the muscles of the articulators and vocal mechanism is needed in order to produce the sounds at will; and even though a child needs to have only a short memory span, the ability to retain the auditory pattern is also needed.

There are many variables in auditory discrimination and memory that affect a child's ability to learn language. Researchers in the Haskins Laboratory of New Haven, Connecticut, have conducted experiments to determine how long a sound must be sustained before it can be perceived. They found that the normal person requires a sound to be two-tenths of a millisecond before it can be perceived. Some children and adults cannot register a sound in that short a period; they require a longer presentation to process the sound. When speech is slowed down, their level of comprehension is improved.

Research also has shown that sounds vary with their position in a word. The [p] in *stop* is an allophone of [p]; that is, it is articulatorily and acoustically slightly different from the phoneme [p] in *pony* or the [p] in *apple*.

Voice inflections and stress vary at the end of a word and according to the type of sentence used.

These variables make the discriminating of individual phonemes a difficult task. For the child who has neurological dysfunctions, the task is compounded.

In addition to the variables in auditory discrimination, there are three aspects of memory that are involved in learning phonemes and combinations thereof. They are impression, retention, and recall. If the ability to discriminate is impaired, the phoneme is probably recorded incorrectly. When babies imitate a spoken sound immediately after hearing it, essentially only impression is involved. The sound is retained for a negligible period of time. In order for whole words to be learned, a baby must retain the auditory impression and must remember sounds in sequence over a longer period of time. When he wishes to utter sounds, he must recall them as well. Any or all of these memory functions can be impaired.

When any of the preceding essential elements is faulty or absent, the child reflects this in his phonological development.

The most common articulatory errors are substitutions of phonemes having the fewest differences in distinguishing features. Many children substitute [t] for [k] as in *tate* for *cake*. [t] and [k] are both plosive and are voiceless. [t], however, is a lingua alveolar sound, i.e., one articulated with the tip of the tongue touching or near the gum ridge; and [k] is a linguavelar sound, i.e., one formed with the back of the tongue touching or near the soft palate. Only one distinguishing feature is different: children with severe articulatory disorders make substitutions involving even greater differences in distinguishing features such as [p] for [s].

Patsy, a student in the Title VI-A language class, made gross errors. She did not make close substitutions. *Picture* was *ferfer* to her. *Bread* was pronounced *fis*. In her case, inadequate motor control and impaired ability to discriminate sounds were both involved.

Skip's speech was almost unintelligible. Vowels were distorted, many substitutions and omissions of consonant sounds were made, and final consonants were almost always omitted. Skip's ability to identify a sound which he had just heard was very poor. He attended closely to people who were talking to him, but he could not identify sounds in individual words that he had heard. His ability to discriminate sounds and to remember sounds were both impaired.

After much training Timmy learned to say *horse* with an adequate *s* at the end, but he could not adequately produce *s* in the word *mister*. In each instance the *s* sound is an allophone of the phoneme *s*. Timmy did not recognize that they were members of the same phoneme. Timmy also used phonemes without regard for voiced or voiceless qualities. He appeared to struggle to produce each sound in a word. The first impression one had was that the articulatory mechanism was involved and that he was incapable of producing the sounds. But in Timmy's case, as in many others reported, babbling and cooing had occurred, demonstrating that the child's speech-producing mechanism was working. However, when he had to imitate or copy sounds in a sequence, difficulties were encountered. Imitation requires that an individual discriminate, remember, retain, recall, and sequence what he has heard. Timmy had impaired ability in all these areas.

Melanie could repeat sounds immediately after hearing them. She could even repeat the same sequence later in the day; but when she was stimulated in the same way the next day or later, she could not recall the sounds because that aspect of memory was impaired. Because speech is temporal, auditory stimuli must be recorded rapidly; visual stimuli can be viewed for a longer period of time. It appears that some children cannot record auditory impressions as rapidly as the phonemes occur in normal conversational speech. Melanie was one such child.

According to Templin, phonological development is normally completed at about eight years of age when all sounds and combinations of sounds in the language are expected to be developed.¹⁰ Long before this development is completed, however, the phoneme combinations or assemblies have taken on meaning. Phoneme assemblies, accurate or inaccurate, are used by the child to stand for objects and ideas. The semantic phase of language development has been entered when the child uses his first word.

SEMANTICS

Semantic refers to the meaning of words. The semantic aspect of language is very complex and requires a mature, intact nervous system to develop properly.

In order to understand this concept, one must really "get out of" his own language, his own organization of thought, and his own pattern of categorizing. Imagine, for the moment, that you have been transported to a culture entirely different from your own and one in which you are expected to make your home. To communicate with other members of this culture, you must learn their ways of categorizing objects and events and the words they use to name these categories. As you live with a native speaking family that serves as your model, you will learn to copy their language.

Assume that you are helping the woman in this family set the table. As she places the silverware on the table, you note that she calls all the utensils *keeli*. Later, she names the clothing you are wearing. Both your patent leather shoes and your matching purse she calls *keeli*. While on a shopping tour, she names many other objects *keeli* including a gold pin, a brass tray, a doorknob, a new bicycle, a power saw, a mirror, and a glossy framed picture.

Your task as a newcomer in this culture is to find the basis on which these varied items are placed in the same category and given the same name. In your new culture, you might conclude that your model has included in the category *keeli* all things which are made of metal. Thus, when you see a wrought iron

fence you say, "keeli." But your model shakes her head to indicate that you have made an error, and you realize that you must look for another attribute common to the things she has named. You would then need to determine some other commonality in the *keeli* category and test your hypothesis with other objects to see whether they are acceptable to your model.

Eventually you may realize that your model has been guiding you to categorize things according to the quality of being shiny. Some tables, then, would be called *keeli* while others would not. The patent leather shoes and the purse would then fit into the category, although when metal was considered the common factor they would not. In time you would learn that the objects were not being described as being shiny but rather that they were, in fact, *a shiny*, a noun.

A mother in an English speaking country would probably guide her child to categorize most objects according to their function. She would point out that all objects used to drink from having a handle and a round opening at the top belonged to a category of things called *cup*. Later this category might be expanded to include paper cups (without handles and resembling glasses), oriental cups (no handles), parts of a game such as golf or parcheesi, or a prize for a sporting event. All children who are learning language require many positive and negative instances of each item. A child needs to have shown to him many and varied items that are in the category, but he must also learn what things do not belong in the category.

For, although events and objects may be unique, categories of objects are similar; and categories of events do recur. There are certain characteristics or *critical attributes* which are exclusive to an object or event that enable us to recognize a category and hence to know the appropriate word that belongs to that object or event.

The means by which categories are assigned is called the *world view* of the culture. All languages are culture bound. Assigning categories is on a subconscious level; we are usually not aware of our categorizations. Children are guided by models in their environment to the categorization method of their culture.

Some investigators feel that humans have an inborn intuition for language and that the nervous system is designed for the development of language. The child whose nervous system is intact, whose hearing is adequate, whose auditory processing is normal, and who is not severely emotionally disturbed will begin to categorize objects and events according to the world view of his culture.

A child is considered to have said his first true word when he knows what will happen when he says it. If the first word is *mama*, he knows that his mother will appear when he utters it. This is the difference between the babbling of *mama*, imitating the phonetic pattern *mama*, and using the real word *mama*.

When a child uses a word in a novel situation, he is considered to know that word; because when he uses it to name an object he has never seen nor experienced before, he has abstracted the criterial attributes of that object and has generalized them to another object that has the same attributes. He has had the auditory pattern appropriate for naming that category of events given to him by a model in his environment. That pattern has been impressed on his mind. He has retained it, he has recalled it at the appropriate time, and he has demonstrated that he has adequate visual and perceptual skills to recognize an object at many different times. He has shown sufficient identification with people in his environment so that he wants to communicate with them by using their symbol system.

It can be seen, then, that every word contains a concept. A word includes many variations of an idea. An average child makes many intelligent errors in learning language; he gives insights into the way in which language is learned.

Usually children can name *dog* as one of their first words. They then refer to all animals as *dog*. As more positive and negative instances of *dog* are presented, the child learns to differentiate animals and soon labels *cat*, *horse*, and *puppy* appropriately.

Our language contains a system of relationships like *animal-dog*. A *superordinate* word is a fairly general, more abstract word; a *subordinate* word is more specific and concrete. A superordinate word contains in its criterial attributes a number of

subordinate words. For example, the superordinate word *clothes* contains the concept of shoes, dresses, trousers, hats, and coats. The superordinate word *appearance* embodies *clothes* and all the subordinate items of clothing plus such concepts as neatness, physical size, and demeanor.

An adult who has aphasia often uses superordinate words that are too broad; too many objects are included in a category. *Furniture* to an aphasic may include *house*, *lawn*, *building materials*, and *carpenter*. He may use these words interchangeably. At the other extreme, some individuals perceive everything as being unique; qualities are not abstracted and generalized. Such individuals are unable to use words to communicate effectively. This condition is often a symptom of psychosis.

Most words have more than one meaning. Meaning must be gleaned from the context in which the word is used. The word *time* is used in many different ways. For example: "I don't have time." Time is not an ownable thing. "Time flies." Are some insects having a race? "I've got time on my hands." Does time have weight? How confusing are such varying concepts to a child who has difficulty understanding what a word refers to!

Prepositions, adjectives, and other classes of words are learned from casual conversation that takes place in the environment. A child has to learn when he is "going to the store," when he is "going to have a birthday," when an apple is "going to turn bad," and many other kinds of *going* as well as other kinds of *to*, such as *two*, or *too*.

To remediate problems on a semantic level, situations as close to real life as possible were set up in the special language classroom. Thinking was guided. For example, to teach the concept of hardness, many items were used; hard objects (positive instances) were felt, eaten, hit, and compared with soft items (negative instances). Objects used were foods like apples *vs.* tomatoes; things in the room like paper *vs.* pencils, clothes *vs.* shoes, and hard shoes *vs.* soft shoes (sneakers).

While phonological development is usually completed at about eight years of age, semantic development normally continues throughout life.

SYNTAX

Syntax refers to combining words to convey meaning. When a child is about eighteen months of age, he discovers that one word will no longer convey all the meanings he wants to indicate. He can usually walk by that time, and has a larger area which he can explore. The number and kinds of experiences he has have grown. His ability to remember things has also increased. He can remember more details about events, and he can also remember more words that he has heard.

While he has used "cookie" to mean "I want a cookie," he eventually has to use more than that word to explain what he means. One day he may go to his mother and say "Cookie" as he has done many times before; but this time his mother answers, "I just gave you a cookie!" The child may respond, "Doggie cookie," which means, "The dog took my cookie." Or he may come to his mother and say, "Cookie fall," meaning, "I dropped my cookie."

Syntactical errors are probably the most obvious language disorders. Most adult listeners can't help but react to a six-year-old child who says, "Me go school today," or "Me no do that."

Early investigators of language development and disordered language often used syntax as a means of diagnosing *delayed language*. Templin,¹¹ McCarthy,¹² and others described techniques of counting vocabulary items, computing mean length of response, or computing the average number of words the child used in each utterance, parts of speech used, and other related measures.

More recently, investigators have studied the quality instead of the quantity of responses. Brown and Bellugi,¹³ Lee,¹⁴ Menyuk,¹⁵ and others began to study the earliest combinations of words, i.e., two words put together.

2

The terminology used by each varied, but essentially the first studies reported that a child has a nucleus of words which may be called *pivot words*. Lee summarized pivot words that other investigators had found. They included: *Daddy, Mummy, 's, see, there, two, this, thisa, that's, that's'a, 'sa, thata, here, there, where, what, it, all, no, the, a, that, my, other, more, see, off, want, I, it, and big.*

The child then uses another group of words, consisting mainly of nouns and verbs, and combines a pivot word with one of these nouns or verbs. Investigators called those words *open-class* words. The order for a two-word sentence was described as consisting of a pivot + an open-class word. Examples are "my cookie," "a doggie," "that doll," and "it go."

As more investigations were made, it became clear that this order, pivot + open-class, was not the only order that occurred in the speech of the children studied. At times, open-class + pivot occurred. Examples of this order would be "want that," and "do it." At still other times, open-class + open-class occurred as in "car go."

Laura Lee¹⁶ analyzed the kinds of two-word combinations in another way. She called some phrases a *noun phrase*, for example, "a car." Other two-word combinations were *designative*, e.g., "there car." Some others were termed *predicative*, e.g., "car broken." Others were called *verbals*, e.g., "see car." The classifications were made on the basis of the words used and the word order.

When a child makes a two-word utterance, a model — usually the mother — repeats the words to the child; but she usually phrases them in a more grammatical way. If her child says "Daddy go," the mother might say, "Daddy is going to the store." By means of the model expanding or correcting what the child says, the child soon expands his own speech. Lee followed this development and said the two-word combinations expanded into *constructions*. In constructions, Mrs. Lee indicated, articles, quantifiers, adjectives, prepositions, and locators begin to occur. Some examples from Mrs. Lee's work include noun phrase construction, "my big car"; designative construction, "there big car"; predicative construction, "the car broken"; and verb phrase construction, "put away the car."

The development from two-word combinations to constructions follows definite rules concerning word order and *word classes* or parts of speech. There are also definite rules followed in the development of sentences. When a construction is expanded to include a subject, a verb, and an optional object, the child has made a sentence. Sentences may not always be entirely grammatical, but they have the subject-verb-object relationship. Words which are frequently omitted are articles, prepositions, and auxiliary verbs. The basic sentence having the subject-verb-object relationship is called a *kernel sentence*. the model usually expands it.

That, however, is not the end of syntactic development. A child has to learn how to perform other operations. That is, he has to learn how to change the kernel sentence in order to ask questions; to pose questions that begin with a *wh* word (*where, what, why,*); to change the tense; to link two or more sentences together with a conjunction; to negate a statement; and to replace part of a sentence with a pronoun. These changes must be made according to rules. Noam Chomsky described and explained the rules for performing these *transformations* in the English language.¹⁷ The rules are very regular and consistent.

Children learn how to perform transformations the same way they learn how to produce individual sounds, single words, and kernel sentences: someone teaches them. The teaching is not formal. The child's model says sentences at the moment at which they are most appropriate. For example, when the mother is getting ready to feed the cat, she might say to her child, "I'll feed the cat." When the cat is eating, she would probably say, "Look, the cat is eating his dinner." When she takes away the empty dish, she might say, "The cat ate all his food." The circumstances determined which verb tenses were used.

A child must listen to the speech of the models in his environment and find recurring patterns. Sentences cannot be taught in the same way words and concepts are because sentences are infinite in number and do not recur in the same way. The situation determines the appropriateness of the specific sentence to be used. The child needs to identify the

patterns of sentences that occur; he deduces *rules* that govern the occurrence of the patterns; and finally he internalizes these rules and makes sentences that follow these rules. He then tries out the correctness of his rules by making sentences and relying on his models' reactions to his efforts.

There is a third level of syntax, in addition to kernel sentences and transformations, which is the *morphophonemic* level. It involves the exceptions to the rules concerning pronunciation. For example, the rule for forming the past tense is to add *-ed* to the verb stem as in *play/played*; but on the morphophonemic level, the past tense of the verb *is* is *was*. Exceptions to the rules must be memorized.

Syntactic development begins between eighteen and twenty-four months. By thirty-six months the child is able to form kernel sentences and can perform a large number of transformations.

In cases of language disorders, when syntax is disordered, the rules have not been learned. Timmy's rule for forming the negative was to "make a statement and put *not* at the end." "Daddy home today not" and "Buy lunch today not" are examples.

Menyuk compared the sentences of a group of normal speakers and those whom she termed *immature speakers*.¹⁸ The comparisons showed that the speech of the immature group was not only slower in developing but it also was different; omissions occurred rather than substitutions; and other differences were noted. The term *delayed language* is, then, not appropriate to describe the language of the language impaired child. He is not just developing language skills more slowly than the average child; his language is developing in a different manner.

The child with a language disorder has to have meaning made for him from the conversation that surrounds him. This concept was the basis for remedial procedures in the Title VI-A class. Speech and all forms of language had to be controlled so that the child had the fewest alternative meanings and fewest possible rules from which to choose.

Structures were controlled, repeated, and demonstrated. Again, as few variables as possible were contained in each situation. For example, to teach the *is - ing* construction ("He *is* running"), each child was told to do something; and another child was asked to tell what he was doing. The child was given the first two words: "He/she is ____." As part of the game, the child supplied the last word. The sentence was said in its entirety again, and the child again repeated it. Then the activity was repeated. The child was asked to tell what was being done, and this time no clues for the required sentence were given.

Controversy exists among linguists concerning the ability to learn the syntax of a language. The consensus is that the human nervous system is designed to detect and imitate the sequence and patterns of syntax.

A child who demonstrates neurological dysfunction, or an adult who incurs insult to the nervous system, is very likely to have impaired ability to detect and use syntactic structures. He is very likely to be unable to or to have difficulty in detecting the recurring patterns, remembering them, forming rules to explain the patterns, and remembering those rules which he has formed.

By the time a child is using sentences and transformations, language has become very complex. A child has to categorize an event and recall the appropriate words to describe that event; he has to remember the sounds of the appropriate word and put those sounds in the right sequence. He must then decide how to combine those words with other words to convey precisely what he wants to about that event. Phonology, semantics, and syntax have to be combined to truly use language.

PUTTING IT TOGETHER

Suzanne Langer proposed that five criteria must be met for language to develop in the human species and for language to develop in each individual in the species.¹⁹ These five criteria are (1) community living, (2) control of the breath stream, (3) development of an epicritical ear, (4) a feedback system for monitoring one's own speech, and (5) imagery.

The first of these criteria, *community living*, implies a need and a desire to communicate. Species other than humans communicate with each other, but none has a *symbolic* system. Humans are the only creatures who use words (phoneme assemblies) to stand for events.

Children raised in the wilds, or children who have been confined or isolated for years, have demonstrated that speech and language do not develop. When attempts were made to teach such children to speak, there was some measure of success; but the youngsters never developed language commensurate with the expectations of their new environment.

The implication from research studies is that there is an optimal time for the development of language. If that time is spent without stimulation, without a model to supply words and guide categorization, or without an opportunity to explore the environment, language will be significantly affected. Since phonemes are not being reinforced, there will probably be an articulatory disorder. Words will not be supplied at the appropriate time; thus there will be a paucity of words available for use and little understanding of concepts. Rules for syntactic structures may not be demonstrated often enough to allow the child to identify and internalize them. Institutionalized children, emotionally deprived children, and some children from low socio-economic environments often have delayed language. Their language is not deviant, but it is like that of a much younger average child.

The second criteria that according to Langer is necessary for language to develop is *control of the breath stream*. In order to produce phoneme assemblies at will, the individual must be able to start and stop the breath stream at any time. This is readily evidenced in the speech of persons having cerebral palsy or Parkinson's disease; they do not have the breath stream under control and at times may attempt to phonate or produce sounds when inhaling instead of exhaling. The resultant speech is halting, unrhythmic, and exhausting to the speaker. When *quiet breathing* or that not used for speech is occurring, the medulla or brain stem controls the process; when breathing for speech, the center of control of the process shifts to the cortex. The

neurology is complicated and helps to explain why the process can occur only in higher species.

The third criteria for language to develop is an *epicritical ear*. This refers to auditory processing including discriminating, remembering, and sequencing auditory stimuli. It involves the transmission of auditory signals from the ear to the temporal lobe of the brain and the perception or registration of those signals. These three auditory processing functions are needed in order to recognize recurring patterns of sounds and words. In order to categorize sounds, they must be recognized when they are heard again. Many children have what is referred to as a short *auditory memory span*. These children have difficulty remembering what they have heard. The length of the memory span varies with each child, but some are able to remember only two sounds or perhaps one word of what has been said. Some children can remember sounds and words but cannot remember the sequence in which they occurred; they may not recognize that *desk* and *decks* are different words. They cannot internalize syntactic rules because they do not recognize the recurring patterns.

A *feedback* system is Langer's fourth criteria for the development of language. Everyone has had the experience of saying something he did not intend to say, inserting an unwanted word, or mispronouncing a word and has immediately recognized the error and corrected it. People must be able to monitor their own speech.

This monitoring process develops during the babbling stage that all babies experience. The deaf cannot do this monitoring, but deaf individuals who learn to speak must monitor their speech, primarily through kinesthesia rather than hearing. Receptive aphasic adults have lost this monitoring ability, often utter a stream of unrelated and nonmeaningful phoneme assemblies, and think they are being readily intelligible.

The fifth and most important criteria Langer hypothesized was *imagery*. Imagery refers to the ability to hold an idea in mind. An event that occurred can be remembered, brought to mind, and replayed mentally. This facility enables humans to recog-

nize an event when a similar event occurs. It enables people to talk about things they have not seen. One doesn't have to travel to Germany to really believe that it exists. Humans make predictions about what will happen in the future because of the ability to hold in mind what has happened before. No other species has this ability. Vygotsky discussed the concept of *insight*.²⁰ He pointed out that a chimp can pick up a stick and use it to reach a banana that is beyond his reach; but if the stick is removed from his sight, the chimp will not look for it. It must be "in sight." He cannot hold in mind that he has solved the problem before and can do it again if only he locates the stick. A young child, even a baby, will remember a toy and go to look for it when it is out of sight.

All five criteria are necessary for a child to develop normal language. While no children in the Title VI-A class had been deprived of community living nor had difficulty controlling the breath stream, difficulties involving the other three areas were very much in evidence.

Failure to develop an epicritical ear led to many problems in processing auditory information. The auditory memory spans of all the children in the class were short; consequently, almost all of the children were unable to remember a syntactic pattern. Sequencing was disturbed in most of them. If they remembered what they had heard, they often remembered it in a mixed-up order. Ability to discriminate individual phonemes, words, and syntactic patterns was impaired in all the children.

Skip had a particularly poor feedback system; he made little progress in identifying the correctness of his own speech. Many of the other children had difficulties in this area as well, and the beginning of the development of a monitoring system usually marked the start of real progress for them. When Melanie finally laughed after she said, "I want a some to drink," and then said, "I want some water," she began to correct many other syntactic errors.

Problems in imagery were more subtle. This deficiency was more evident in the mentally retarded children who were referred to the class. They were less able to remember the

details of a previous event and compare them to a similar event. However, Wilbert, a child of average intelligence, had some difficulties abstracting pertinent details from a situation; and consequently many of his concepts were distorted. His problems in imagery resulted in specific concept errors, such as the inability to hold in mind the circumstances that occurred when the phrases "on the bus," "on the desk," "on fire," "put your clothes on," and "on the top" were said. *On* means something different in each situation, and the child must abstract what the *on* means in many situations. He must determine which use of *on* is appropriate. Wilbert was very confused when his teacher insisted that they had taken a field trip "on a bus." When he had accepted all the explanations he could and felt the need to defend himself, he almost screamed, "But you can't ride *on* a bus. You would fall off!" This kind of disturbance in imagery was the most common form exhibited by those children in the special language class who had normal intellectual potential.

When language development occurs without any problems and a child has good comprehension of what is said to him and is able to respond with appropriate utterances, the secondary symbol systems of reading and writing develop without many problems. But if language is significantly deviant at the oral level, reading and writing will most certainly be impaired.

Chapter 3

Diagnostic Information

Diagnosing children who have language disabilities has been a problem since authorities agreed that such a population existed. McGinnis felt that the language-impaired children she identified responded to the method of teaching she devised;¹ if they did not respond, she concluded that they had other problems in addition to their language impairment. Myklebust, however, feels that a teaching method cannot be chosen until a differential diagnosis has been performed and the child's specific problems have been identified.² Since the Title VI-A class was designed to meet the needs of children who had specific language problems, it was necessary to identify the specific areas of language that were impaired.

Diagnosing a problem is a very complicated task and requires the services of at least two people. In clinical situations specialists from many disciplines can be used, including a physician, an audiologist, a speech pathologist, a psychologist, a social worker, and perhaps others. But in the public school situation, it is considerably more difficult to involve all these professionals.

As explained in Chapter One, during the first year of the program, there was no stipulation that the children have normal intellectual ability. However, there did have to be a discrepancy between nonverbal and verbal abilities. When the criteria for admission to the class changed, the instruments and techniques for diagnosing were changed for the second year of operation. The technique described here pertains to the second and subsequent years of the program.



Two kinds of diagnosing are discussed in this chapter. The first is the evaluation of children referred for admission to the class. The purposes of this evaluation were (1) to determine if the child had normal intellectual ability on nonverbal tasks, (2) to determine if a language problem was present, and (3) to determine if the language problem was responsible for the child's school failure.

The second type of diagnosis described is that of determining specific strengths and weaknesses of each child selected to enable the staff to plan a program of remediation. The tests used for this evaluation are charted in the second portion of this chapter.

The professionals involved in the initial evaluating in the Title VI-A class were the psychologist and the teacher-therapist.

To determine if normal intellectual potential was present, the psychologist checked the child's background and consulted with the school personnel involved with the child at the time. She noted steps that had been taken in the past to deal with the child's problem and reviewed significant medical and psychological histories. If no recent psychological test had been administered, she administered the performance scale of the Wechsler Intelligence Scale for Children (WISC). Selected subtests were given if the test had been previously administered.

The teacher-therapist administered the Inventory of Language Processes to determine if a language problem was present and, if so, if it was causing the child's school failures. The Inventory of Language Processes, with explanatory notes, is presented in the first part of this chapter. A copy of the inventory is also in the back pocket of this book.

Inventory of Language Processes

The Inventory of Language Processes is intended as a comprehensive guide for those who wish to evaluate language abilities of children. It is not standardized and specific items or materials are not given in many cases. The examiner may use those materials readily available to him and appropriate for the age

and environment of the child to be tested. A list of helpful materials can be found at the end of the inventory.

It is not one of the functions of this evaluation procedure to determine if average intellectual potential is present nor are age equivalents given. Words and phrases used by the examiner should be words that would be expected to be used in the child's environment.

Completion of the Inventory of Language Processes should reveal a child's specific problems and also indicate his strengths. It takes about one hour to administer the entire inventory, but it may be given in several different sessions if necessary.

INVENTORY OF LANGUAGE PROCESSES

Designed and Developed by
Joan L. Monaco* and Lexa D. Dillon

NAME _____ DATE OF BIRTH _____
DATE _____ SCHOOL _____
EVALUATOR _____ REFERRED BY _____

I. Semantic Level

A. Receptive

1. "Show me" — single nouns and verbs (pictures)
(or Peabody Picture Vocabulary Test score)

Samples — _____

2. "Show me" — Part of object ("one that has
_____") Use three items, at least one of
which is a real object in the room.

Samples — _____

3. "Show me" — Function ("one that is used
to _____")

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Notes

I. Semantic level

A. The receptive section of the form is designed to determine if the child understands what is said to him and can identify the items that words stand for.

1. Using pictures representing nouns that include items of clothing, furniture, foods, school and playground equipment, mealtime objects, and other things the child would be expected to be exposed to. Verbs should be ones the child has heard pertaining to climbing, running, walking, talking, crying, playing, etc. At least four pictures should be exposed at one time, with only one clearly representing the word you are saying at that time.
2. Identifying part of an object has several purposes. Seeing part-whole relationships is important. The phrasing of the question is sometimes a problem for some children. Many children cannot separate the part from the whole and have only one name for the object. For instance, a child may identify a door and correctly show how to open the door, but when asked "Show me the door knob," be unable to do it.
3. To determine if the child can identify an object according to its function, it may be necessary to observe him using the objects to be questioned to determine that he uses them appropriately when no words are used. Items such as the "one used to put butter on toast," the "one used to color a picture," etc. can be used.

Inventory of Language Processes, continued

4. "Show me" (Category — animal, food, furniture, etc.)

5. Expand a category ("Find a knob. Find another one. Find another one.")

6. "Show me something" — (Adjectives) use pictures or objects.

big___ little___ biggest___ smallest___ happy___

sad___ surprised___ sweet___ ___

7. Prepositions

If child is able to follow single commands, have him place objects in spatial relationships to illustrate the following:

on___ next to___

in___ behind___

under___ over___

If the child is unable to perform in this manner, set up the situations and have the child point to the objects illustrating the relationships ("Show me 'The spoon is behind the cup.'").

Notes

4. Categories are included to see if the child has superordinate concepts (see Chapter 2). Does he realize an object can be called by more than one name? Some categories that might be used are food, clothing, furniture, animals, transportation, and entertainment.
5. Expanding a category is a critical factor; and if a child is unable to perform in this area, he has a severe problem. Choose something in the room — window sill, door knob, handle, leg, or any other thing and have the child find another one. Encourage him to continue finding another one and observe the means he uses to categorize. He may find all things that are made of the same material, or the same color, or shape, or things located close to the same item. His reason for the categorization is not important, but only that he has a system.
6. and 7. Adjectives and prepositions are included to determine if the child has adequate understanding of those words. As in the other cases, words should be chosen that the child would be expected to have heard.

Inventory of Language Processes, continued

8. Identify a situation depicted in pictures from a verbal description.
9. Tell the child a story, and ask questions about content.
10. How did the child appear to comprehend conversational speech? Did particular parts of speech appear to give him trouble? (e.g., *Wh*-question forms.) Can a pattern of errors be detected?

B. Expressive

1. Name nouns, verbs, adjectives (pictures)

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Notes

8. Several pictures showing actions such as those found in reading readiness books should be placed in front of the child. He is then asked to point to the one described by the examiner. Use two or three sentences to describe the picture.
9. The story to be told to the child should be five or six sentences long and depending on the age of the child include varying amounts of detail. Questions should *not* require interpretation on the part of the child.
10. The examiner should record specific problems noted on the receptive section.

B. Expressive

This section of the evaluation is to determine if the child's ability to express himself is disproportionate to his ability to understand what is said to him. It is also intended to identify specific areas of difficulty in expressing himself.

1. Select pictures of objects and actions to which the child would be exposed in his environment. The same pictures which were used in the receptive portion may be used in this section.

Inventory of Language Processes, continued

2. Rapid naming of unrelated pictures. ("Tell me these as fast as you can.") Number of errors: ____

Type of errors: Associated words ____

Latent responses ____

No response ____

3. "Name as many things as you can." Listed only things in sight ____ Related words ____

Random words ____ Others ____

4. Describe a picture.

a) Picture present

b) Picture removed

5. Ability to relate events accurately and sequentially:

"First you got up in the morning, then you" . . .
or do or make something with the child and
have him tell what you did.

Prompting needed?

Sequential order?

Related to topic?

Single words, phrases, or connected sentences
used?

Notes

2. Use pictures of items that are not in the same category. Have the child name the pictures *slowly* first. Discard any that he cannot name. Then have the child name them rapidly. Putting each picture down at a rapid rate will force him to keep going. The purpose of this task is to determine if a problem in word recall or retrieval is present.
3. Persons with normal language facility will usually start naming items and then begin a series of related words. For example, *table, desk, chair, sofa, rug, drapes, piano*, etc. If a child names only things he can see in the immediate area, a visual memory problem might be suspected. Also note the use of superordinates or words in the same category.
4. Describing a picture, first when the picture is present and then when it is removed, serves two purposes. Look for the amount of detail included, note whether the child merely names items present or if he tends to make up a story about the picture. (The picture should lend itself to a story.) When the picture is removed, note discrepancies in the two descriptions or lack of detail; again, inability to describe the picture when it is removed can indicate a visual memory problem. Also note if the child tends to include himself in the story. If a child does not understand that pictures are representational, he tends to think of the picture only in terms of himself.
5. This is designed to determine if the child is able to relate events in the order in which they occurred.

Inventory of Language Processes, continued

6. "Tell as many things about a _____ as you can."
7. Read child a brief story such as a *Weekly Reader* article at his grade level. Ask child to retell the story. Note inclusion of major ideas, sequences, and sentence structure.
8. General description of child's ability to formulate and sequence ideas, etc. Use of causal, temporal, categorical relationships; concrete vs. abstract; etc.

II. Syntactic Level

- A. "Show me . . ." Use pictures representing parts of speech, e.g., "He is pulling the wagon." Or use the Northwestern Syntax Screening Test.

_____	_____
_____	_____
_____	_____
_____	_____

- B. Is this right?

Me want it. _____

It is she book. _____

Notes

6. Use a common object such as a chair or leg. Note the use of physical characteristics, function, generalizing, e.g., for the word *leg*, does he include the leg that an animal has, leg of furniture, last leg of a race, etc.
7. Compare the child's story in this situation to his performance on Item 4 when he tells a story about a picture. Note if he remembers more details when the stimulus is visual (the picture) or auditory (reading him the story). Children vary in the manner in which they can grasp information.
8. This item allows the examiner to record specific problems found and to summarize the child's expressive abilities.

II. Syntax

- A. (The Northwestern Syntax Screening Test can be used for this purpose.)

Pictures that can be used to demonstrate various parts of speech should be selected. Pronouns, present progressive, present and past tenses of verbs, noun plurals, and prepositions should be tested. The child is asked to point to the one shown. For example, "Show me, 'He is running.' " The items to choose from might include a boy running, a girl running, a boy climbing, and a girl sitting.

- B. The child is asked to answer *yes* or *no* to each of the items. The task is designed to determine if the child recognizes syntactical errors in the speech of others.

Inventory of Language Processes, continued

That one is mine. _____

The boy running. _____

The girls are baking a cake. _____

The dog are barking. _____

The toy is broken not. _____

- C. Secure samples of spontaneous speech. Note use of kernel sentences, transformations, regularity of errors, verb tense, plurals, order, sequencing, etc.

III. Auditory Skills

A. Memory

1. Identifies given sound when hears it repeated. How many sounds? _____ "Listen, I will say a sound, *k*. Tell me when you hear *k* again. Ready?"

k - *s*, *k*

p - *m*, *t*, *p*

f - *d*, *z*, *h*, *f*

2. Digits (two per second)

6-1____; 4-0____; 8-3-6____; 9-2-0____; 5-2-8-1____;

0-6-9-1____; 2-9-3-8-1____; 3-1-9-6-4____

Notes

- C. The sample of speech can be elicited in the initial meeting with the child or from comments and questions about items or pictures used in other parts of the test.

III. Auditory Skills

- A. Memory. Several examples of auditory memory are assessed in order to obtain a complete picture of the child's ability to remember auditory information. Normally, related or meaningful material will be remembered better than unrelated words or non-meaningful material.
 - 1. This item is intended to determine how many sounds the child can hold in his memory. Some children who have very impaired auditory memory cannot remember what sound was at the beginning of a word or what word was at the beginning of a sentence when the word or sentence is completed. Many children have difficulty understanding this task. If the child does not grasp the task after two or three trials, do not pursue it. Continue with the rest of the memory tasks.
 - 2. Digits. The examiner should say the digits at the rate of two per second. Two samples for each of two, three, four, and five digits are given. Note the most the child can repeat.

Inventory of Language Processes, continued

3. Structured Babbling

ba _____ mo _____

ba, bo _____ mo, mae _____

ba, bo, bee _____ mo, mae, mu _____

ba, ba, bee, bu _____ mo, mae, mu, mah _____

4. Unstructured Babbling (Nonsense syllables)

ba-to _____

ki-se _____

me-fo-ba _____

si-le-tu _____

lo-mi-sa-du _____

ge-po-na-fu-shi _____

5. Unrelated words

sun-foot _____; day-trap _____; chair-dog-apple _____;

shirt-car-face-stone _____; tree-store-box-coat _____;

run-lamp-dime-fox-name _____; stamp-bowl-train-

song-hat _____.

Notes

3. and 4. Babbling is nonmeaningful material. The related sounds in item three are usually easier to remember than the unrelated syllables in item four. The examiner should present the syllables at the rate of two per second.

5. and 6. Words are meaningful materials. The related words in item six are usually easier to remember than the unrelated words in item five. The semantic clues provide an aid for remembering the words. If a child remembers fewer related words than unrelated ones, it may be because he is trying too hard to understand the relationship among the words or chose a faulty method to help him remember. Administer at the rate of two per second.

Inventory of Language Processes, continued

6. Related words

arm-hand____; dress-socks____; pants-shirt-tie____; foot-shoe-sock____; car-train-bus-plane____; bed-chair-couch-table____; penny-dime-nickel-quarter-dollar____; paper-pencil-crayon-scissors-rulers____.

7. Sentences

Boys can run____. We sing songs____. The toys are broken____. Some people are late____. Tom and Bill were lost____. Carl didn't have a bike____. His father was making a table____. What did you buy at the store?____

8. Following Commands

- a) In space (Begin with three commands. If unable to perform, give a two-part command; if unable to perform, a one-part command.)

Examples:

- (1) Give me the book, then go to the door, then touch the floor.
- (2) Pick up the pencil, then clap your hands.
- (3) Go to the door.

Notes

7. The length of the sentence is not as important as the construction of the sentence. Constructions that the child uses in his own speech will be repeated; but if the child does not use the construction, regardless of the length of the sentence, he will not repeat it.
8. Note whether the child performs all the commands in sequence, if he performs them but not in the sequence in which they were said, and which commands he does not follow. Also note if there is a discrepancy in following commands in space or on paper; there is a semantic component involved in generalizing spatial words from three dimensions to two dimensions.

Inventory of Language Processes, continued

b) On paper

- (1) Put an X under the boy.
- (2) Draw a circle around the baby.
- (3) Draw a line over the tree.

B. Discrimination

1. Assumption is made that the child is able to discriminate both fine and gross differences if he is successful with babbling. If there is an indication of difficulty in this area, continue with sections (a) and (b).

a) Fine differences — sounds: (same or different?)

<i>f - p</i>	<i>sh - sh</i>
<i>t - k</i>	<i>r - w</i>
<i>s - th</i>	<i>ih - eh</i>
<i>g - d</i>	<i>l - l</i>

b) Gross differences (if unable to perform discrimination of fine differences) (same or different?)

<i>s - b</i>	<i>ay - ee</i>
<i>t - m</i>	<i>p - d</i>
<i>d - d</i>	<i>r - g</i>
<i>k - l</i>	<i>ch - ch</i>

Notes

- B. Discrimination — The order of presentation is designed to save time.
 - 1. If a problem in auditory discrimination is indicated on the auditory memory items, fine discrimination of individual phonemes is assessed first; if the child is successful, there is no need to assess gross discrimination.

Inventory of Language Processes, continued

2. Words

a) Fine differences

ten—pen _____ bat—hat _____

fine—sign _____ see—bee _____

key—key _____ cap—tap _____

b) Gross differences (same or different?)

boy—cab _____ house—house _____

top—pat _____ people—money _____

king—cake _____ size—size _____

3. Sentences (same or different?)

The weather is cold. — The boy has a cold. _____

The cat eats. — The cats eat. _____

The boys run. — The boy runs. _____

The babies cry. — The baby cries. _____

Birds can fly. — Birds can fly. _____

C. Blending — Show me

1. cow-boy

3. f-a-t

5. d-e-s-k

2. bl-ack

4. h-ou-se

Notes

2. The same pattern as described in B.1 above is true for word discrimination.
3. The use of sentences in assessing auditory discrimination ability is very important. Include this item even if no problem is indicated on other auditory discrimination items. If a child makes errors in his own syntax, it must be determined if he recognizes the differences in syntactic structures.
- C. Pictures showing each of the items listed plus some decoy items are placed in front of the child. Directions should be "I am going to say some words. But I will say the words in parts. Point to the one I say. Are you ready?"

Inventory of Language Processes, continued

IV. Visual Skills

A. Matching

1. Pictures of objects

2. Forms and shapes (nonmeaningful material)

gross differences _____

fine differences _____

Notes

IV. Visual Skills — The assessing of visual skills is included in the language evaluation for two reasons. First, if a child perceives objects inaccurately, he does not recognize the consistency (criterial attributes) for naming things that are alike. Second, when a child is given a direction and he fails to execute the direction correctly, it must be determined if he failed because he didn't understand the language used or if he did not accurately perceive the object or paper he was commissioned to do.

A. Matching — The child should not be required to reproduce the pattern.

1. Objects should vary in the degree of differences between them. Reading readiness materials have many appropriate items. Differences can include direction in which the objects are facing, smiling and frowning faces, position of extremities on people, and the like.

2. Forms and shapes include geometric shapes and abstract forms. Gross differences might include very different items, such as ☆ □ ○ Fine differences might have different internal detail, such as, ⊕ ⊗ ⊙ Use at least three items for each category and use as few verbalizations as possible to explain the task, but be certain that the child understands what he is to do.

Inventory of Language Processes, continued

3. Letters

gross differences

fine differences

4. Groups of letters

gross differences

fine differences

5. Words

gross differences

fine differences.

Notes

3. Use real letters. Grossly different letters vary in both internal and external detail. For example,

A	C	D	A
---	---	---	---

;

m	m	p	i
---	---	---	---

. Letters with fine differences vary little in external and/or internal detail, such as

b	d	b	h
---	---	---	---

 or

w	m	n	w
---	---	---	---

.

4. Groups of letters are actually nonsense words. Those with gross differences do not resemble each other in whole word configuration, in length, or in internal detail. Examples are:

ehw	yep	ehw	tbt
-----	-----	-----	-----

 or

rmc	ptr	bbt	rmc
-----	-----	-----	-----

. Those with fine differences are similar in external configuration and/or internal detail. Some examples are

lat	tal	lat	leb
-----	-----	-----	-----

, and

mic	mic	nis	mjc
-----	-----	-----	-----

.

5. Words with gross visual differences include

house	tal	sandy	house	car
-------	-----	-------	-------	-----

 and

bus	bus	time
-----	-----	------

. Words with fine differences look similar in all respects. Examples are

saw	was	sam	wes
-----	-----	-----	-----

 and

bee	ceb	dec	bae	bee
-----	-----	-----	-----	-----

.

Inventory of Language Processes, continued

B. Visual Memory (Indicate number of items retained in each category and type of error. Do not require the child to draw or write his responses. Let him manipulate materials to indicate his answer.)

1. Pictures of objects
2. Forms and shapes
3. Numbers
4. Letters
5. Words

Notes

- B. Visual memory — The task can be arranged most easily by using one of two methods. Objects, shapes, numbers, letters, and words can be on separate papers. The examiner can arrange varying numbers of the papers in a specific order. The child is allowed to look at the arrangement for several seconds. The examiner then shuffles the pictures and asks the child to rearrange them in the order in which they had been.

An alternative method is for the examiner to have prepared papers with a variety of arrangements of the objects, shapes, numbers, letters, and words. The examiner then shows the child one arrangement for several seconds, removes it, and then asks the child to mark the one he saw. For example the child might have on his paper the following number arrangement:

738 837 387 347

While the child has his paper turned face down so that he cannot see the numbers on the paper, the examiner might hold up a paper having 387 written on it. She allows him to see it for several seconds, puts it down, turns the child's paper over, and allows him to mark the one he saw.

The number of items in each area is increased and two trials for each level of difficulty should be allowed. If the child passes the first item, do not administer the second. Use items having two, three, four, five, and six components.

Note discrepancies in the number of units remembered. The number of words remembered will be fewer than the other items because each word should have three or four units.

Compare his performance on this task with his performance on auditory memory tasks.

Inventory of Language Processes continued

- C. General description of child's ability to attend to visual material. Evidence of visual distractibility? Do verbal responses indicate possible perceptual difficulties?

V. Motor

- A. Use of crayons and scissors — color and cut shapes (for children four and under only)

B. Copying

- 1. Forms
- 2. Letters

Notes

- C. This item allows the examiner to record the general visual functioning of the child. If the examiner has observed any behaviors that raise the question of a visual acuity problem, it should also be noted. The examiner should also note if the child performs better when tasks are primarily auditory or primarily visual.
- V. Motor. An evaluation of some areas of the child's motoric performance is included to determine if the child is able to perform motor tasks or if any problems in this area are the result of language deficiencies. Visual and motor tasks are closely related. Visual reception is input; motor is output.
 - A. Young children are asked to color simple shapes such as circle and square to identify problems in ability to control the crayon, ability to move the crayon when they want to move it, and ability to recognize when they have completed the task.

Things to note in scissors use are: The grasp of the scissors, if correct fingers are used to hold them, if the free hand is used to help, and ability to cut on the lines.

- B. Copying forms and letters should be done two ways. First, the things the child is to copy should be placed on his desk. A paper can be prepared by the examiner so that the sample is next to the place the child is to make his form. For example: Δ ___ ; d ___ ; h ___.

Second, the forms and letters should be written on the blackboard. Note discrepancies in his performance. A figure-ground problem or a visual perception problem can be indicated by inability to copy from the blackboard.

Inventory of Language Processes, continued

C. Revisualization

1. Make forms and letters when removed from sight
2. Make numbers and letter combinations when removed from sight
3. Make forms, numbers, and letters when name of form, number, or letter is given

- D. Gross Motor: Ask child to hop, skip, and jump. Demonstrate if necessary.**

Notes

- C. Revisualization. Revisualization is a combination of visual memory and motor memory. If the child demonstrates adequate visual memory in section IV-B and if he can copy forms and letters in Part B of this section, but cannot write things from memory, the combination of visual and motor memory is probably the problem.
1. Use single forms and letters, such as, □; L; d. The child's paper should be lined and should have darker lines in the place where he should make his responses. The examiner should have each sample on a separate paper, expose it to the child for several seconds, and have the child make the form on his paper.
 2. Administer the task in the same manner as in Item One. The combination should have three and four components.
 3. The child is told, for example, "Draw a triangle." "Make a seven." "Make an A." All of the items used should have been included in Items One and Two of this section to insure that he can reproduce the forms from memory and that the only variable is the name of the form, number, or letter.
- D. Gross motor. Only a few gross motor behaviors are sampled. Note if the child is unable to perform when told to hop, skip, and jump but can perform when a demonstration is given. If the language involved is the primary problem, the child will not follow the direction but will perform when shown how.

Inventory of Language Processes, continued

VI. Number Concepts

- A. Match sets.
- B. Rote counting.
- C. Name number symbols
- D. Match symbols to sets

Notes

- VI. Number Concepts — Numbers are symbols and manipulating numbers is a complex task. It is *not* true that children who have language disabilities are good in math and that you can tell if the language-disabled child has average intelligence by noting his math work. Mathematics involves temporal-spatial relationships; both of these kinds of concepts are difficult for language-impaired children to understand.
- A. Use any small materials — sticks, toys, blocks, or other materials usually available in the classroom. Arrange sets having different numbers in them and have the child identify which sets have the same number of objects.
 - B. Ask the child to count — start him if necessary by saying, “1, 2, 3 . . .” and have him continue. Note how high he can count. If he is successful counting ones, ask him to count by fives and tens.
 - C. The examiner should write each numeral on a separate piece of paper. Ask the child to tell what numeral it is when the examiner holds it up. If he is unable to perform, put several numerals on the table in front of him and ask him to point to the one named.
 - D. Use the same objects and numerals as in Items A and C. Ask the child to put the numeral with the set that has that many objects in it.

Inventory of Language Processes, concluded

E. Operations (addition, subtraction, multiplication, division)

F. Size Concepts

larger____ smaller____ long____ short____ greater____

less____

Notes

- E. The examiner can prepare a worksheet that has samples of each type of operation. Arrange addition and subtraction problems in both horizontal and vertical arrangements, for example, 1 and $4 + 2 = \underline{\quad}$;
7 and $8 - 2 = \underline{\quad}$. $\begin{array}{r} +3 \\ \hline \end{array}$

$\begin{array}{r} -3 \\ \hline \end{array}$

The Wide Range Achievement Test arithmetic subtest is an appropriate substitute.

- F. Some words that are used in mathematics often confuse children who have language problems. A few of these words are sampled. The examiner can arrange pencils and/or pens of various widths and lengths. Ask the child to identify the one described by the examiner. Be sure that only one response would be correct.

For the words *greater* and *less* arrange two groups of objects and ask which group is *greater*. Arrange two other groups and ask which group is *less*.

**Suggested Materials For Use In Administering
The Inventory Of Language Processes**

Semantic

Beckley-Cardy Reading Readiness Cards <i>Hear, Tell</i>	Beckley-Cardy Co.
Ideal Consonant and/or Vowel Pictures for Pegboard	Ideal School Supply Co.
Pictures from reading readiness workbooks — for sequence stories	
Situational pictures from the Peabody Language Kits	American Guidance Service Inc.
Three of a Kind Strip Books	Philograph Publications Limited
Weekly Reader stories at appropriate grade level	
Word Making Cards	Word Making Productions

Syntax

Northwestern Syntax Screening Test	Northwestern University Press
Pictures from reading readiness workbooks	

Visual Matching

Alphabet Cards	Developmental Learning Materials
Beckley-Cardy Reading Readiness Cards <i>Look</i>	Beckley-Cardy Co.

Parquetry Blocks

Picture and Shape Sorting Cards Philograph Publications
Limited

SRA Learning to Think Series Science Research
Associates, Inc.

Standardized Reading Tests

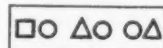
Visual Memory

Teacher-prepared materials like the following samples

stimulus card



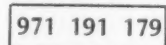
response card



stimulus card



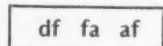
response card



stimulus card



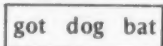
response card



stimulus card



response card



Motor

Coloring books or teacher-prepared papers having various
shapes drawn on them

Number Concepts

Wide Range Achievement
Test — motor portion

Western Psychological
Services

Test Battery

Following is a compilation of test information secured on the language class children and conveyed to those people working with them in the Title VI-A project. It does not necessarily indicate the purposes for which the tests were originally designed nor the interpretations suggested in the manuals for those tests. The purposes for which the tests were used in this project are delineated.

Definition of terms:

Input — modality or modalities which are used to receive information. For example, on the Peabody Picture Vocabulary Test the examiner says a single word (auditory or verbal) while showing the examinee a page that has four pictures on it (visual). The input modalities then are auditory and visual.

Output — modality or modalities the examinee uses to respond. On the Peabody, for example, the child must point to the picture named by the examiner. Pointing is a motor act, and the picture is a visual stimulus. The expected output is visual-motor.

Integration — requiring meaning. If a task requires that the examinee copy what he sees or hears, he does not need to know what the information means; for example, tests of auditory memory do not require that the child know what the words or numbers mean. They do not require integration. However, if the task is to arrange pictures in a sequence so that they tell a logical story the child must know what the pictures mean and must be able to integrate.

Auditory — refers to sound. If the examiner says something, the input for the child is auditory.

Motor — refers to the act of moving. If a child is required to copy movements, or write, or point, he is required to make a motor response.

Visual — refers to seeing. If a child is shown something, it provides a visual stimulus.

TEST BATTERY USED FOR LANGUAGE CLASS STUDENTS

Receptive Language

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
Illinois Test of Psycholinguistic Abilities (ITPA)		
Auditory Decoding	Comprehension of single sentences in question form using obligatory <i>do</i> form. ("Do dentists drill?") Auditory input, verbal output. Integration required.	Speech Clinician
Auditory Vocal Association	Comprehension of relationships presented auditorily. ("An ocean is deep. A pond is ____.") Auditory input, verbal output. Integration required.	Speech Clinician
Peabody Picture Vocabulary Test (PPVT)	Comprehension of single words. Auditory-visual input, visual-motor output. Integration required.	Speech Clinician
Wechsler Primary and Preschool Scale of Intelligence (WPPSI)		
Arithmetic	Comprehension of numbers, number words and numerical relationships with no visual clues. ("If I cut an apple in half, how many pieces do I have?") Auditory input, verbal output. Integration required.	Psychologist
Comprehension	Social judgment in practical situations. Also involves formulation and expression. ("What should you do if ____?") Auditory input, verbal output. Integration required.	Psychologist

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
WPPSI cont.		
Information Subtest	Knowledge of everyday experiences and words that describe those experiences. (What comes in a bottle?) Auditory input, verbal output. Integration required.	Psychologist
Similarities	Comprehension of relationships presented auditorily. ("You wear shoes and you also wear ____.") Auditory input, verbal output. Integration required.	Psychologist
Expressive Language		
Developmental Sentence Types (Lee)	Syntax development. Visual or auditory input, verbal output. Integration required.	Teacher-therapist
Examination of Oral Mechanism Palate, Tongue Mobility, Diadochokinetic Rate	Condition of oral mechanism for production of speech	Speech Clinician
Houston Test		
Picture Vocabulary	Word knowledge and recall of labels. Visual input, verbal output. Integration required.	Psychologist
ITPA		
Auditory Vocal Association	Word recall in context. Auditory input, verbal output. Integration required.	Speech Clinician
Auditory Vocal Automatic	Word recall and use of appropriate grammatical constructions and morphological endings. Auditory input, verbal output. Integration required.	Speech Clinician
Vocal Encoding	Ability to describe attributes of objects; verbal semantic ability and syntactic ability. Visual input, auditory output. Integration required.	Speech Clinician

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
Photo Articulation Test	Articulatory errors. Visual input, verbal output. Integration required.	Speech Clinician
Stanford-Binet		
Picture Vocabulary	Same as is measured by the Houston. Ceiling item is at four years. Integration required.	Psychologist
WPPSI		
Vocabulary	Word knowledge and concepts. Can also alert to syntactic problems. Auditory input, verbal output. Integration required.	Psychologist
Audiological Evaluation: Acuity and Processing		
Pure Tone Threshold	Hearing acuity for pure tones. Auditory input, motor output. Integration not required.	Audiologist
Speech Reception Threshold	Hearing acuity for speech. Auditory and visual input, visual and motor output. Integration required.	Audiologist
Wepman Auditory Discrimination Test In Quiet and With Noise	Ability to tell the difference between two minimally paired words with background noise absent, then with masking noise. Auditory input, verbal output. Integration not required.	Audiologist
Auditory Memory		
ITPA		
Auditory-Vocal Sequencing	Ability to remember series of numbers given at two per second. Auditory input, verbal output. Integration not required.	Speech Clinician

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
Wechsler Intelligence Scale For Children (WISC)		
Digit Span	Ability to remember series of numbers given at one per second. Auditory input, verbal output. Integration not required.	Psychologist
WPPSI		
Sentences	Ability to remember sentences of increasing complexity and length. Auditory input, verbal output. Integration not required.	Psychologist
Nonverbal Concepts and Reasoning		
Draw a Person	Estimate of IQ; concept formation based on accuracy of visual perception. Body image. Auditory input, visual-motor output. Integration required.	Psychologist
Informal Assessing of Ability to Understand Gestures	Comprehension of concepts when no words are used. Motor input, motor output. Integration required.	Teacher-therapist
ITPA		
Motor Encoding	Expression of concepts using gestures. Auditory-visual input, motor output. Integration required.	Speech Clinician
Visual Decoding	Nonverbal concept formation — ability to abstract attributes and generalize them to another situation. Visual input, visual-motor output. Integration required.	Speech Clinician
Visual-motor Association	The same abilities as visual decoding but associated pairs instead of items in the same category are used. Visual input, visual-motor output. Integration required.	Speech Clinician

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
Ravens Progressive Matrices	Estimate of IQ when verbal components are not involved. Primarily exposes visual abilities of closure, matching, and integration.	Psychologist
WISC		
Picture Arrangement	Ability to match and integrate parts into a whole. Visual and auditory input, visual-motor output. Integration required.	Psychologist
Object Assembly	Ability to arrange pictures in a logical sequence so that they form an object or, at higher levels, to relate a story. Visual input, motor output. Integration required.	Psychologist
Visual Perception and Visual-Motor Output		
Beery Test of Visual Perception	Ability to copy geometric designs. Visual input, visual-motor output. Integration not required.	Occupational Therapist
Frostig Test of Visual Perceptual Development		
Eye-Motor	Ability to draw lines between two targets. Measures pencil control. Visual input, visual-motor output. Integration not required.	Occupational Therapist
Figure-Ground	Ability to identify central visual figure from a visual background. Visual input, visual-motor output. No integration required.	Occupational Therapist
Form Constancy	Ability to identify an object when it occurs in varying settings. Visual input, visual-motor output. Integration not required.	Occupational Therapist

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
Frostig Test of Visual Perceptual Development Cont.		
Position in Space	Ability to recognize an item when only position is changed. Visual input, visual-motor output. Integration not required.	Occupational Therapist
Spatial Relations	Ability to reproduce abstract designs when sample is present. Visual input, visual-motor output. Integration not required.	Occupational Therapist
ITPA		
Visual Motor Sequencing	Ability to remember nonmeaningful visual information. Visual input, visual-motor output. Integration not required.	Speech Clinician
Southern California Figure-Ground	Ability to identify each of three overlapping figures. Visual input, visual output. Does not require use of pencil. Integration not required.	Occupational Therapist
WISC		
Block Design	Ability to copy, organize, and form relationships in space. Visual and auditory input, visual-motor output. Integration not required.	Psychologist
Coding	Ability to coordinate timed eye-hand-motor performance. Visual and auditory input, visual-motor output. Integration not required.	Psychologist
Picture Completion	Visual closure; visual memory; attention to visual detail; ability to abstract critical attributes when all attributes are not present. Visual input, visual-motor output. (Verbal output encouraged.) Integration probably not required.	Psychologist

<u>Test</u>	<u>To Measure</u>	<u>Examiner</u>
WPPSI		
Geometric Designs	Ability to reproduce patterns using blocks of different colors. Task changes from copying after demonstration to copying from blocks and copying from picture of the arrangement. Visual input, visual-motor output. Integration not required.	Psychologist
Gross Motor		
Bayley	Motor development. Ceiling four years. Auditory and/or motor input, motor output. Integration required on some tasks.	Occupational Therapist
Lincoln Oseretsky	Motor development. Auditory and/or motor input, motor output. Integration required on some tasks.	Occupational Therapist

Chapter 4

How Diagnostic Information Was Used for Remediation

Evaluating a child's language and learning characteristics should be an ongoing, never ending part of his teaching. The way he reacts in any new situation is significant. It is only over a period of time that the variables which influence him can be pinpointed.

For example, Wilbert consistently had trouble performing adequately during the gross motor activity "Angels-in-the-Snow." This activity involves moving arms and legs in varying ipsilateral and bilateral combinations. One day Wilbert said, "Can I close my eyes when I do it?" He did, and his performance greatly improved. When discussing this event in staff meeting, everyone could cite instances when Wilbert performed better when he had his eyes covered or when it was particularly quiet; too much stimulation overloaded his neurological system, and he was unable to perform any task adequately.



At some point in the evaluation process, decisions have to be made about what procedures to use; and teaching or therapy must begin. There is a nucleus of information that can be obtained from tests to start teaching, but there must be enough flexibility to change the approach as the child's behavior dictates. Tests serve to sample behavior at a given time under certain conditions. A longer association with a child serves to corroborate or negate test findings. The tests, selected to evaluate the children in the language class to determine their stronger and weaker areas, sampled auditory, visual, and motor behavior. In no case involving the children in the language class was one area obviously the strongest and the other areas very weak; there were both strong and weak areas in all modalities. Auditory memory might be weak, for example, but visual memory might also be shorter than expected, though less

impaired than the auditory. Total test results had to be examined, and strong points in every area had to be individually identified. Interpretation of the tests followed a pattern of task analysis.

Myklebust has described the theory on which this concept of task analysis is based¹. The theory maintains that the brain functions by means of a series of semiautonomous systems. At times a given system functions independently of other systems; at other times it functions with one other system; and at still other times it functions in conjunction with many other systems. In order to determine the reason for a child's failure to perform a task, each system's integrity in combination with other systems needs to be evaluated. Children, then, can have problems when an *intraneurosensory* process is involved, such as verbal output; when *interneurosensory* processes are involved, such as auditory input and visual output; and when *integrative* processes are involved for which the child must understand the meaning of the material presented.

One must consider what modalities are being used to get information to the child and what modalities the child must use to respond. Asking a child to point to an object or picture involves the child's employing auditory input to receive the verbal output of the examiner. Motor output (pointing) is the response. This particular task would be intersensory because auditory and motor modalities are being used together. There are theoretical considerations as to whether any task can be truly intrasensory because, for example, talking requires a motor act and pointing requires perception of a visual object to which one must point.

The type of task must also be considered. Tasks can be nonverbal and nonsocial, such as telling whether two tones are the same or different; there is no meaning involved and no social significance. Tasks can be nonverbal and social, such as the sound of a fire siren, the ring of a telephone, or the whine of a jet engine; they have social significance, but they do not involve verbalizations. A task can also be verbal and social. Any time a child fails a task, the task must be analyzed to determine exactly what abilities the child needs in order to be able to perform it.

An analysis following this framework was done when Danny failed a task. In class one day Danny was asked how old he was. He looked puzzled and didn't answer. The teacher then pursued a series of questions to find out why he didn't answer. What modalities were needed for input? What processing did Danny have to do to understand what was said to him? What modalities were needed for output? What processing did he have to do to make his response? Was the information involved meaningful or nonmeaningful? Social or nonsocial?

The task presented — asking Danny how old he was — involved auditory input; something was being said to him. In order to process the statement so that he could gain meaning from it, he had to (1) discriminate that statement from all background noise, (2) segment the words in the question and correctly identify the words, (3) draw from his memory of those words and the experiences he had had when those words were applied and obtain meaning from them, (4) recall the word or words needed to respond, (5) produce the motor movements needed to produce the correct sequence of phonemes and words, and (6) monitor his response to confirm that it was the response he intended to make. The task was then intersensory in the respect that it involved auditory input and verbal output; it was auditory and integrative in that Danny had to acquire meaning from the words said to him and make a meaningful response. Speech was involved so it was a meaningful, social task.

To find out if Danny had discriminated the statement from background sound, he was asked to repeat the question; he did this. (If he had not been able to give this verbal response, the teacher-therapist would have said several sentences, one of which would have been the original question, and asked him to nod yes or no in recognition of each statement until he identified the one that had been asked.) The processing he would have to do in order to understand the question was then analyzed. First, did he know what the words meant? One technique used to determine if a child understands what is being said to him is to provide him with an absurd answer and observe his reaction. In this case the teacher-therapist said, "Are you a hundred years old?" Danny laughed and said, "No!" The teacher assumed from that response that he understood the

question. Danny, therefore, had received and understood the question. The input was satisfactory.

The output modality was then manipulated. Instead of requiring him to give the answer, he was asked to say *yes* or *no* to possible answers provided for him. "Are you nine years old?" "No." "Are you seven years old?" "Yes." To see if Danny could motorically produce the word, he was asked to repeat *seven* after his teacher said *seven*. This he did. He was asked to point to the number symbol 7. He did. When asked to produce the word when he saw the visual symbol representing that number (7), Danny revealed his problem. When he saw the symbol 7 he said, "One, two, three, four, five, six, seven. Seven!"

From this series of questions it was determined that Danny knew what was asked of him; he knew the answer; he could articulate the word when it was said first for him. He was not, however, able to recall the word at the needed time. He had found a method to help himself, i.e., naming items in a series until he reached the appropriate word. His system needed to be improved to gain more speed, but he had demonstrated that he could compensate for at least one area of difficulty. Danny's test results had shown depressed scores on many areas of verbal functions, but his very specific word-finding problem and compensatory serial naming were not identified on any of the standard measures.

There were several premises basic to the teaching of the class that influenced the manner in which the test data were used. Perhaps the most basic premise of the Title VI-A program was that language is not learned — nor can it be taught — *only* by using words. Words stand for things and ideas; and it is only through exploring the environment by moving, touching, feeling, smelling, watching, and experiencing the consequences of the explorations that language is learned. Testing and diagnostic teaching show the ways that are most effective for each child to learn about his environment. Building up weak areas helps the child become more aware of things around him, and his teachers help him recognize the significance of those things he observes.

Processing difficulties are different, however. By definition, language refers to the use of symbols to stand for objects and events. Discriminating between phoneme assemblies that are similar, repeating what has been said by someone else, or attending to what is said do not require that an individual understand the representational nature (meaning) of the symbols being used. For example, asking a child to tell if the words *ship* and *chip* are the same or different does not require that he know the meanings of these words. However, asking him to point to the picture of the one that sails on the water does require that he know the meanings of these words.

Problems in auditory discrimination, auditory memory, and auditory attention can be dealt with in structured as well as contextual situations. For instance, the use of Language Master cards for discriminating between sentences that are similar is a valid drill activity; but to stress the sentence pattern "He is ing," one must set up a situation that appropriately accompanies that verbalization. The pattern must be learned through meaningful experiences.

Another basic concept employed by the staff was that the child's strengths should be used for the primary mode of presentation of material. Weak areas had to be developed, but the way the child could most easily understand material was the modality through which he would primarily be taught. The child's strengths and weaknesses in any area were important considerations for all those involved with the child. For example, the visual-motor specialist (occupational therapist) was concerned with such things as improving visual figure-ground discrimination, improving gross motor dynamic and static balance, teaching forms and letter discrimination, developing left-right progression, and teaching many other prewriting skills. It was necessary for her to be aware of the child's difficulties in attending to verbal directions and to plan her lessons accordingly.

The speech and language clinician had goals to improve auditory discrimination, lengthen auditory memory, develop the correct use of pronouns, facilitate word recall, and many others. For Skip, the use of a mirror proved to be very effective; Melanie

was much too visually distractible to use a mirror. Timmy profited from color coding clues; Phil was confused by the use of many visual stimuli and needed a simplified setting for his Easter Seal language therapy sessions.

The teacher-therapist was concerned with teaching such skills as reading, writing, social studies, and arithmetic. The activities of the other professionals involved in the program were, in many cases, chosen to develop some skills needed in academic subjects. Choosing a reading method was particularly delicate and of necessity relied heavily on the modality preferences and strengths indicated by testing results. Even though Robbie had exceptional ability to remember visual material, for example, his problems in visual form constancy and word recall indicated that a purely visual approach to reading would be unsuccessful.

After the test battery had been completed, the staff met and each individual student and his test results were discussed. Specific weaknesses and strengths were pointed out. Non-recorded testing data, such as the amount of effort the child exerted, how the timing of his work affected him, how quickly he tired of a task, how he behaved when frustrated, and his general attitude toward the examiner and the task were discussed. This information was as important in programming as the test scores themselves.

Goals were set for what each child should be taught on the basis of specific deficits indicated on tests and for the classroom on the basis of the sequential academic expectations of the Montgomery County Public Schools. At the beginning of the program, only one or two of the children were ready to handle reading activities. Test results showed specific weaknesses and strengths and enabled the staff to predict specific areas of reading that would be difficult for each child. On the basis of these depressed areas, remedial and readiness programs were developed.

Melanie scored far below her chronological age level on all measures of visual-motor functioning; she also showed depressed scores on auditory processing areas. For Melanie, double programming was needed. Since her visual areas tended

to be stronger than auditory, visual clues were used as the main mode of presentation of materials. The occupational therapist concentrated on prewriting activities at first and later on letter forms. The most depressed areas of Melanie's visual functioning were visual-motor coordination and figure-ground discrimination. Noting Melanie's problems in auditory discrimination, auditory memory, and sentence repetition (WPPSI sentences), the speech clinician centered her program on developing those areas. To provide the maximum opportunity for integration of the skills that the occupational therapist and speech clinician were developing, the teacher-therapist used similar activities but in other contexts in the classroom. Melanie's weaknesses in both auditory and visual channels indicated to the teacher-therapist that she would not learn to read by either a sight or phonetic approach alone because neither channel was strong enough by itself. Vocabulary items for experience stories, which were an integral part of the oral language activities, were chosen so that words did not resemble each other visually or auditorily. Kinesthetic clues were supplied as often as possible as a supplementary form of reinforcement.

The test data indicated that Skip had trouble with all forms of sequencing: auditory, visual, and motor. In arithmetic when he began to learn written problems, such as $1+3=$, the same sequencing problems were noted. It made no difference to him which way he read the problem: $=3+1$, or $1+3=$. But the symbols were also interchangeable for him; $3=1+4$, $4=+31$ all meant the same thing. The occupational therapist then worked on left-right progression. The speech clinician worked on "reading" pictures from left to right and the teacher-therapist worked on the significance of the symbols. This problem might have been predictable from the tests, but the implications were not clear to the staff at the time the tests were analyzed.

The approaches to academics for the other children were tailored in a similar manner. Each child was truly dealt with as an individual.

One of the strongest points of the project was the carry-over from therapy sessions to the classroom and from the classroom

to individual therapy sessions. The danger of remedial specialists building *splinter skills* which the child does not integrate into his everyday functioning was avoided.* The teacher-therapist related to the other specialists what the child was doing in the classroom in units of social studies or science. Occasionally, the specialists observed the class to note behavior in the group. The children were helped a great deal by the consistent use of words: those being presented in the classroom were the same words the speech clinician was using for auditory discrimination activities. By the same token, grammatical constructions that the speech clinician had developed were used in the classroom many times during the day, possibly with the subject and verb different, but with the constructions preserved.

For teaching, test results should be analyzed in two ways. First, specific problems need to be identified, and second, strengths and weaknesses in learning modalities should be itemized. Some tests which the staff of the Title VI-A class have found helpful in identifying processing and language problems are listed.

Problems in auditory processing are indicated by scores below the chronological age of the child available on most of the following tests or subtests. (For complete publishing house data see reference list at end of chapter.)

1. Boston University Speech Sound Discrimination Picture Test
2. Illinois Test of Psycholinguistic Abilities (ITPA), Experimental Edition,
3. Illinois Test of Psycholinguistic Abilities (ITPA), Revised Edition,
 - a) Auditory Closure
 - b) Auditory Sequential Memory
 - c) Sound Blending
4. Inventory of Language Processes
 - a) Auditory Discrimination
 - b) Auditory Memory

*A term used by Kephart to refer to a specific skill a child learns but does not employ in any other area.² For example, many specialists used peg board designs to develop visual-perceptual skills. Some children learn to reproduce very complex designs, but they cannot generalize the skills needed for that task to reproducing letters.

5. Stanford-Binet Intelligence Scale, Sentence Repetition
6. Wepman Auditory Discrimination Test
7. Weschler Intelligence Scale for Children (WISC), Digit Span
8. Weschler Pre-Primary Scale of Intelligence (WPPSI), Sentence Repetition
9. Informal testing assessing ability to discriminate sounds or repeating what is said without having to understand what was said

Problems in visual processing or visual-motor functioning are indicated by depressed scores on the following tests and subtests:

1. Beery Test of Visual Perception
2. Bender Visual Motor Gestalt Test For Children
3. Frostig Test of Visual Perceptual Development
 - a) Eye-Motor
 - b) Figure-Ground
 - c) Form Constancy
 - d) Position in Space
 - e) Spatial Relations
4. Illinois Test of Psycholinguistic Abilities (ITPA), Experimental Edition, Visual-Motor Sequencing
5. Inventory of Language Processes
 - a) Visual
 - b) Motor
6. Southern California Figure-Ground Visual Perception Test
7. Weschler Intelligence Scale for Children (WISC)
 - a) Block Design
 - b) Coding
 - c) Object Assembly
 - d) Picture Completion
8. Weschler Pre-Primary Scale of Intelligence (WPPSI)
 - a) Animal House
 - b) Block Design
 - c) Geometric Design
 - d) Mazes
9. Informal tests assessing ability to match, copy, or remember visual stimuli without requiring the individual to know what the information means.

Some tests and subtests which measure language abilities at the semantic or syntactic levels are:

1. Ammons and Ammons Full-Range Picture Vocabulary Test (semantics)
2. Illinois Test of Psycholinguistic Abilities (ITPA), Experimental Edition,
 - a) Auditory-Vocal Association (semantics)
 - b) Auditory-Vocal Automatic (syntax)
 - c) Auditory Decoding (semantics)
 - d) Motor Encoding (semantics)
 - e) Visual-Motor Association (semantics)
 - f) Visual Decoding (semantics)
 - g) Vocal Encoding (semantics)
3. Inventory of Language Processes
 - a) Semantics
 - b) Syntax
4. Northwestern Syntax Screening Test (syntax)
5. Peabody Picture Vocabulary Test (semantics)
6. Weschler Intelligence Scale for Children (WISC), Verbal Scale (semantics)
7. Weschler Pre-Primary Scale of Intelligence (WPPSI), Verbal Scale (semantics)
8. Any task that requires the child to show that he understands the meaning of individual words or strings of words

To identify specific strengths and weaknesses in learning modalities the requirements for successfully accomplishing each task must be examined and compared with the child's performance on other tasks. For example, a child might be successful on the Southern California Figure-Ground Visual Perception Test and be unsuccessful on the Frostig Figure-Ground subtest. An analysis of these two tasks would demonstrate that the Frostig requires that the child use a pencil and trace forms; the Southern California requires the child to point to separate pictures of three objects which are overlapping in the test item. Two possible reasons for the inconsistent results in figure-ground discrimination would be that the child has difficulty using a pencil and/or that he cannot retain the stimulus material.

No single test is adequate for diagnosing a child's problems, and
no single test or teaching technique is adequate for remediation.

TEST REFERENCES

Ammons & Ammons Full-Range Picture Vocabulary Test
Psychological Test Specialists
Box 1441
Missoula, Montana 59801

Beery Test of Visual Perception
Follett Publishing Company
1010 West Washington Boulevard
Chicago, Illinois 60607

Bender Visual Motor Gestalt Test for Children
Psychological Corporation
304 East 45th Street
New York City, New York 10017

Boston University Speech Sound Discrimination Test
Boston University
195 Bay State Road
Boston, Massachusetts 02215

Frostig Test of Visual Perceptual Development
Follett Publishing Company
1010 West Washington Boulevard
Chicago, Illinois 60607

Illinois Test of Psycholinguistic Abilities
University of Illinois Press
Urbana, Illinois 61803

Inventory of Language Processes
(See Chapter Three.)

Northwestern Syntax Screening Test
Northwestern University Press
Urbana, Illinois 61801

Peabody Picture Vocabulary Test
American Guidance Service, Inc.
Publishers Building
Circle Pines, Minnesota 55014

Southern California Figure-Ground Visual Perception Test
Western Psychological Services
Box 785
Beverly Hills, California 90213

Stanford-Binet Intelligence Scale
Western Psychological Services
Box 785
Beverly Hills, California 90213

Wepman Auditory Discrimination Test
Language Research Association
300 North State Street
Chicago, Illinois 60610

Weschler Intelligence Scale for Children (WISC)
Psychological Corporation
304 East 45th Street
New York City, New York 10017

Weschler Pre-Primary Scale of Intelligence (WPPSI)
Psychological Corporation
304 East 45th Street
New York City, New York 10017

Chapter 5

Classroom Management and Teaching Techniques

This chapter describes general principles and goals for treating language impaired children. More specific application of these principles and goals can be found in Chapter Six.

The primary goal for the children in the language disabilities class was the development of oral language. During the first year of the program, most of the school day was spent on activities for developing auditory skills, demonstrating the meaningfulness of selected syntactic structures, developing oral vocabulary, and attempting to guide the children's thinking to enable them to use higher language functions.

As soon as rudimentary oral skills were being used, written language and other academic areas could be stressed. During the first year, the teacher-therapist was mostly a therapist; the second year, her role was more that of a teacher.

The material presented, the program organization, and the daily schedule were designed to achieve the intended goals. The visual and auditory stimuli in the classroom were reduced. By no means was the room barren, but the materials displayed were useful and meaningful. Too little stimulation can cause children to create some stimuli of their own such as drawing on desks or rocking in their chairs.

Therapies, both speech and visual-motor, were scheduled in the morning to use the children's most alert moments. A structured, consistent daily routine was followed. For the first organized activity of the day the children sat in a semicircle in front of a manipulatable calendar and bulletin board to discuss the date, weather, and news. Individualized academic work followed the opening and consumed the entire morning, with the exception



of the half hour or so each student spent in his individual speech and language therapy session (and, during the first year, visual-motor therapy as well) at the Easter Seal Center across the street. The language class children had lunch in the all-purpose room of the school along with other students and had about half an hour on the playground before returning for afternoon work. After the play period, the teacher-therapist usually read to the children from a book the class had selected from the library. A short gross motor development activity followed story time.

The language environment in the classroom was highly controlled during the first year of the experimental demonstration class. Previously, auditory material had not been meaningful to the children; successful comprehension had to be achieved if they were to learn. They had to be able to find recurring patterns so that they could generate rules for syntactic structures. As abilities developed, structure was reduced.

Meticulous control had to be exercised over examples used in teaching to insure clarity. If the teacher-therapist was teaching the word *and* as a linking structure, a *but* example was not allowed to creep into the lesson. The students could not tolerate variations or exceptions at the early stages of language mastery.

Listening for any length of time was extremely difficult for all the children. They had to be taught how to listen in successive stages. The first requisite was to establish the habit of giving complete attention to the teacher-therapist. The students had stopped expecting to understand and were not in the habit of attending, nor could they tell when a statement was ended and attention was no longer needed. Some had learned to *look* as though they were paying attention.

Auditory stimulus reduction was extreme at the beginning; the teacher-therapist said very little. What she said was short, pertinent, and immediately verifiable. She also gave her total attention to a child attempting to speak. Her attention provided a model of respectful listening which the children adopted.

Key words were used to elicit attention: *Listen---* *--Wait---* *Now*. The teacher-therapist frequently gave directions to the group, such as "We will move to the round table-----
now." The students were required to wait until they heard the word *now* to perform the direction. The tone used was not harsh or punitive but friendly and playful, and the children responded in the same spirit. As they waited (often as long as a half-minute) for that *now*, they were actively listening. Immediately after *now*, they all moved to the round table. They had been required to attend to and to try to retain the command, both of which were very difficult tasks.

As auditory attention developed, *now* was dropped as a control signal. Some children obviously had learned to rely on it. Jan was observed giving her head a vigorous nod and saying, "Now!" at the initiation of a command long after the teacher-therapist had dropped it from her repertoire. Phil, who had been a "wall climber," could also be observed to continue to use such verbal cues to keep his behavior under control.

Meaningfulness was developed by keeping the linguistic load light and consistent. For example, the round table was always called "the round table" and not "the circular table," or "the tan table," or "over there," or "that table." It was essential to provide stability and eliminate confusion at the early stages; so single designations were used for the people, objects, and activities in the class environment. As their language developed, synonyms were used.

Experiences and the language for those experiences were linked consistently and repetitively. Enormous imagination and ingenuity were needed by the teacher-therapist and the Easter Seal staff to make the experiences and the simple language structures meaningful, interesting, and pertinent to the children.

To get meaning from syntactic patterns, the children had to be exposed over and over again to consistent structures. Eventually rules could be internalized and structures reliably called upon for language formulation and expression. Repetition and reinforcement of selected structures was carried out by all involved staff and was suited to specific students' needs. When Timmy

was concentrating on the *is-_____ing* structure, Melanie was working primarily on prepositions and Jan on pronouns. Other teaching, both planned and incidental, was going on concurrently; but these target structures were emphasized in individual therapy sessions, in classroom listening and reading, and in recreational activities. It was a kind of "total immersion."

Automatic speech — simple social responses everyone uses — also had to be taught consistently. For example, the children had to be taught to ask, "How are you?" and respond, "I am fine." A classroom project was undertaken in which each child learned how to write the others' names. When he learned to write someone's name from memory, the student was given that person's telephone number to put in his phone book. After about five months of the class, parents reported that the children were telephoning each other from home and carrying on simple conversations, such as "Hello, Phil. This is Skip. How are you? I am fine." That a seven- or eight-year-old would be thrilled by such a conversation seemed strange only to those who did not understand the severity of the youngsters' language disabilities.

Group and individual language instruction was the focus of at least one-half of each day. Auditory training sessions, auditory memory practice, development of a syntactic structure, introduction of new vocabulary and new constructions, and review of the Easter Seal clinicians' individual work were usually part of the afternoon sessions. A wide variety of approaches and materials were used including picture cards, books, felt boards, chart racks, tape recorder, Language Master, portable auditory training units, dittoed work sheets, photographs, records, circle games, guessing games, and motor pattern activities with verbal instruction.

News time was a part of the daily routine. The news for the first several months was largely an itemization of what each child was wearing; but gradually items were brought to share, and events of interest were discussed. The calendar work, analysis of weather, reading of the thermometer, and discussion of clothing were repetitive and consistent with slowly expanding vocabulary and concepts of time, seasons, numbers associated with

temperature changes, and sequencing activities presented. The teacher-therapist, at first almost a solo performer, needed to do less and less of the talking. By the beginning of the second year, the children were able to ask each other questions and carry on the entire calendar-weather-news time with only an occasional assistance from the teacher-therapist or her intern. By the middle of the second year, the children were going into so much detail and asking so many questions that news time had to be curtailed. Certain children were allowed to give news on certain days.

Meaningfulness of the relatively rote items involved in calendar work was regularly checked. At the end of his first year in the class, Wilbert could say, "Today is Tuesday, June 17, 1969," but was still very confused when asked, "What month is it?"

The close collaboration between Easter Seal speech and language clinicians and the teacher-therapist in the classroom provided a model which other speech clinicians could readily adapt to their dealings with the teachers of children receiving language therapy. The content of the therapy session might be a concept from a social studies or science unit the classroom teacher was working on. Selection of this classroom subject matter helps provide a gestalt for the child. Likewise, auditory discrimination activities, multisyllabic word drills, and sentence patterns can draw on curriculum-related items. Language does not occur only in the therapy room, or even primarily there. The speech clinician can help both the student and his teacher by selecting collaborative rather than isolated content for therapy sessions.

The development of oral language marked the beginning of the reading program in the Title VI-A classroom. It was only when some facility with oral symbols had been attained that written language could be learned. The introduction of written language was through labeling and experience stories used at first to serve as markers for sequencing the events of oral stories. Experience stories were later used, as described by Kirk,¹ as a visual approach to the teaching of reading. Very brief commands were given orally and carried out; these same commands were then written, read, and carried out over and over again: "Hop to the

window." "Look at your shoe." "Open the door." These written commands demonstrated the power of written words to evoke the same consequences as oral commands. One of the varied activities using these sentences involved the students' recording them on Language Master card tapes and matching the printed command with the spoken one. One purpose of this particular activity was to enable the children to recognize and relate their own speech — often very defective speech — to the printed words.

From this general introduction, each student's reading program branched off into whatever training approach was indicated: an auditory approach, a visual approach, or a multisensory approach. In general, the child's best functioning system was the channel for initial teaching. For example, if auditory skills seemed better than visual skills, a phonic approach to reading was initiated. No reading method was used exactly as its author suggested. Principles of the Gillingham, McGinnis, and Fernald approaches; the Merrill and Palo Alto Linguistic Readers; and the Ginn Basal Series were modified for each child. In every case, neither the auditory nor visual channel was strong enough to be relied upon for the total teaching of reading.

Arithmetic words and signs presented the same kinds of problems as any other language components. Students in the experimental class had strikingly different difficulties with math. Wilbert could manipulate materials to solve problems when those problems were presented orally; but when the symbols were written down, he could not solve the same problems. Skip did not attach significance to the signs of +, -, and =; and he used them interchangeably. These problems persisted for Skip and still remain to some extent. Problems in left to right sequencing were very evident in performing mathematical operations.

By the end of the second year, half of the children had been taking math instruction in regular second or third grades.

In the second year of the class, each child had his own wall pocket into which much of his individual work in reading, math, and language practice was placed. He moved through the

sequence of his individually planned work, having the teacher-therapist or intern check each activity to see that it was correct before he proceeded to the next item. This productive, self-satisfying procedure was demanding on the staff. The teacher-therapist and the intern planned and often created the materials for four children each. This meant many hours of work each night for both. Observers frequently commented that they had never before seen children working so hard nor with such an air of self-fulfillment.

Drawing and painting, clay work, cutting, and other art activities were part of the language class curriculum but not a very large part. Many of these activities were part of the occupational therapist's program at the Easter Seal Center. In the second year, music became a more regular part of the class, especially singing with simultaneous movements. Science activities the first year were largely based on weather and temperature observations or were simple experiments on which to base an experience story. The school's science teacher included the class in his program during the second year.

At Miss Doris Johnson's suggestion, a unifying theme or motif was used in the class starting in the summer session between the first and second years of the experiment. Miss Johnson had pointed out during her day's consultation that such an overall "subject" would help the students integrate different aspects of the program and provide more interest. The earnestness with which language remediation was being pursued through the highly organized days had obscured this simple and valuable idea. Topics used during the five-week summer program were games, transportation, community helpers, plants, and maps.

Only a few field trips were taken, usually with the first grades during the first year and the second grades during the second year. A weekly trip was part of the five-week summer session, with just the language class students and staff accommodated in a minibus. Vocabulary and experiences related to the field trips were utilized extensively in academic and language work. Polaroid photos helped.

A few observers felt the class activities were too structured and directed. They felt the children's creativity was being stifled. All

agreed, however, that the students seemed deeply involved and satisfied with their demanding work. The staff believed that careful structure was essential to develop functioning language. Toward the end of the second year when the children had many more words and structures available for use, the classroom organization was relaxed considerably; more choices were allowed and self-direction came more into play.

Some techniques for remediating oral language problems were definitely more profitable for some children than for others. Each child seemed to have his own way of picking out clues that helped him. David used serial naming to help him recall words; sentence completion was an effective tool for Timmy. Norton could be helped by being given the initial sound of the word he could not recall. Wilbert was more confused when auditory discrimination activities included visual clues as well.

The suggested activities that follow will not all work for all children. Several alternatives are given for each problem using different input and output modalities. It must be cautioned that these are only suggested activities; if the teacher has adequate understanding of language and language processes, he can make his own activities which might be more relevant for the child. These activities are intended to serve as a starting point.

**Suggested Remedial Techniques
for Disorders in Auditory Discrimination**

Problem

Child is unable to tell the difference between two nonverbal sounds.

Suggested Techniques

1. Materials: Assorted noisemakers

Technique: Child is shown noisemakers and watches teacher produce sound with each one. Child turns his back to the noisemakers; teacher uses one; child turns back and points to the one that produced the sound.

More difficult levels: Use noisemakers acoustically similar, e.g., different kinds of bells.

Visual-motor output

2. Materials: Noisemakers

Technique: Child is shown noisemakers and watches teacher produce sound with each one. Child turns his back to the noisemakers. Teacher makes two sounds, sometimes the same noisemaker used twice, sometimes alternating noisemakers. Child tells teacher if he heard different noisemakers or the same one.

More difficult levels: Minimally different noisemakers

Verbal output

Problem

Child is unable to tell the difference between two inflectional patterns.

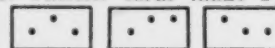
Suggested Techniques

3. Materials: Noisemakers

Technique: Same as item two, but instead of pointing, child picks up the noisemaker he heard and makes it produce the sound.

Motor output

1. Materials: Pattern cards made by teacher;



and piano, voice, or other instrument that produces different pitches

Technique: The auditory pattern for each card is demonstrated for the child. Teacher then produces one pattern and asks the child to point to the card that shows that pattern. Use only two pitches.

More difficult levels: Begin the activity by using two cards; increase the number of choices and make the patterns more complex.

This task requires a longer auditory memory than that required in other discrimination activities listed.

Visual-motor output

2. Materials: Piano, voice, or other instrument that produces sounds of more than one pitch

Problem

Suggested Techniques

Technique: Teacher produces two patterns using two pitches for each pattern. The child tells if the two patterns are the same or different.

More difficult levels: Produce patterns that are more similar.

Verbal output

3. Materials: Piano, voice, or other instrument that produces sounds of more than one pitch

Technique: Teacher produces an auditory pattern consisting of three tones, only the middle tone varies:  or  or . The child is then asked if the sound in the middle went up, down, or was the same as the other tones.

More difficult levels: The middle tone is made closer in pitch to the initial and final tone.

Verbal output

4. Materials: Piano, voice, or other instrument that produces sounds of more than one pitch

Technique: Teacher produces an auditory pattern consisting of three tones. The child moves himself or an object up or down to demonstrate whether the middle tone went up or down.

Problem

Suggested Techniques

More difficult levels: The middle tone varies less.

Motor output

Child is unable to tell the difference between environmental sounds

1. Materials: Pictures of telephone, typewriter, ditto machine, car, airplane, water fountain, playground, lunchroom, and other things that produce sounds in the environment around the child. (A good set of pictures is included with the Developmental Learning Materials *Familiar Sounds* tape.)

Technique: Take the child to the school office, hallway, or parking lot. Demonstrate sounds that each of the pictured items listed above makes; be sure the picture is associated with the sound the object makes. The child is placed so that he cannot see what is happening in the area. He points to the picture of the object that is making the sound when that sound occurs.

Visual-motor output

2. Materials: Recording of environmental sounds and pictures of items producing those sounds

Technique: Play the tape or record once showing the child the picture that goes with the sound. Play the tape or record again having the

Problem

Suggested Techniques

child point to the picture of the thing making the sound.

Visual-motor output

3. Materials: Telephones, typewriter, animal sound-producing noise-makers, blackboard and chalk, other classroom sounds

Technique: Each sound is demonstrated for the child. Pairs of sounds are presented and the child tells if the two sounds are the same or different.

Verbal output

**Suggested Remedial Techniques
for Disorders in Auditory Memory**

Problem

Child cannot remember series of sounds he has heard

Suggested Techniques

1. Materials: Recording of environmental sounds, pictures of all objects producing sounds on the recording

Technique: Play the recording and show the child the picture that goes with each sound as the sound occurs. After ascertaining that the child has correctly discriminated each sound, play two sounds and ask the child to put the pictures of the things he heard in the right order. Add one sound at a time until five or six are used. Be certain to give directions *before* playing the sounds so that the child does not have to retain the sounds through the explanation of what he has to do.

Visual-motor output

2. Materials: Noisemakers

Technique: After ascertaining that the child can discriminate between the noisemakers, two are made to produce sounds. Have the child point to the ones he heard. Increase the number of noisemakers he has to remember.

Visual-motor output

Problem

Suggested Techniques

3. Materials: Buzzer board and pattern cards

Technique: Two or three pattern cards are put in front of the child. The instructor produces a pattern on the buzzer board that is represented on one of the cards, viz; - . - . The child picks the one he heard. This task requires a high level of auditory and visual discrimination.

Visual-motor output

4. Materials: Letters of the alphabet on individual cards or pieces of paper

Technique: After ascertaining that the child knows the sounds that go with the letters being used, the instructor says a series of sounds and asks the child to point to the ones he heard in the same order as he heard them.

This activity can be done as an independent classroom or therapy activity using the Language Master. The child uses a paper clip to attach the letters to the Language Master card in the order in which they occurred.

Visual-motor output

Problem

Suggested Techniques

5. Materials: None

Technique: Instructor says a series of one-syllable numbers or individual phonemes. The child is told to say the same things that are said to him, in the same order.

Verbal output

6. Materials: Pencil

Technique: Instructor taps on desk with a pencil or other object and asks the child to tell how many taps he heard. Clapping may be substituted for tapping.

Verbal output

7. Materials: Recording of environmental sounds

Technique: Child is shown an action to accompany each sound, for example, running with arms extended at his sides for an airplane. A series of sounds is played and the child acts out the series in the same order as the sounds occurred.

Motor output

8. Materials: Buzzer board, pencils, or other instruments that can be used to produce different patterns.

Problem

Suggested Techniques

Technique: Instructor produces a pattern of long and short sounds and pauses. The child repeats the pattern using the same materials.

Motor output

9. Materials: Two pencils or other types of sticks

Technique: Instructor taps a desk with the pencil and asks the child to reproduce the sounds he heard.

Motor output

10. Materials: Phonic mirror or tape recorder with tape loop

Technique: A series of two to five individual phonemes is recorded. The child repeats the series, then listens to the model followed by his own response. The child should evaluate his response.

Verbal output

Child cannot sequence words.

1. Materials: Pictures of objects familiar to the child that he can name

Technique: Instructor names a series of the pictures and has the child arrange them in the order in which they were said.

Visual-motor output

111

Problem

Suggested Techniques

2. Materials: Two or three sets of the pictures from item one

Technique: Instructor arranges the same pictures in different sequences. The child is asked to point to the sequence named.

Visual-motor output

3. Materials: Pictures of familiar objects, a Language Master and blank Language Master cards

Technique: A series of the pictures is named on the Instructor track of the Language Master card. The child clips the pictures to the card in the order in which they were named.

Visual-motor output

4. Materials: Language Master and blank cards

Technique: Instructor records a series of words on the Instructor track of the Language Master card. The child repeats the series and records it on the Student track.

This activity can be done independently by older children in the classroom or therapy room.

Verbal and motor output

Problem

Suggested Techniques

5. Materials: None

Technique: Instructor names a series of objects in the room. The child is told to touch each one in the order in which they were named.

Motor output

6. Materials: None

Technique: Games such as "I'm going to the store and I'm going to buy_____." where each child in the group names an item and the next child repeats all previous items and adds one more.

Verbal output

Child leaves out syllables in multisyllabic words.

1. Materials: None

Technique: Instructor says a word and asks the child to identify how many syllables or beats he heard in the word.

Verbal output

2. Materials: Paper, pencil (helpful to use a notebook for each child)

Technique: Key sounds are given to the child as markers for remembering the whole word. The letters for these sounds should be printed

Problem

Suggested Techniques

under a picture of the item. For example, b - t - f for *butterfly*, um - b - a for *umbrella*.

Child says the whole word when shown the letters.

Verbal output

Suggested Remedial Techniques for Disorders in Reauditorization

Problem

Child has previously demonstrated that he knows a word, but he cannot recall the word at the time it is needed.

Suggested Techniques

1. Materials: Objects familiar to the child; for example, ball, apple, shoe, key, cup

A box with an opening on top to allow the instructor to put the objects in, and a hole in the front large enough to let the child put his hand in. The child should not be able to see inside the box.

Technique: Each item is described and named while the child views the objects. He then should feel each object and describe it. The objects are then placed in the box and the child reaches in, feels one, and names it, then shows object to the teacher.

Verbal and motor output

2. Materials: None

Technique: Instructor says a sentence that should end with the word the child is trying to recall. The last word is omitted and the child provides it.

Verbal output

3. Materials: Objects in sight

Technique: Instructor provides the child with alternatives; for example,

Problem

Suggested Techniques

"Is this a hat or a shoe?" The alternatives should be in the same category.

Verbal output

4. Materials: None

Technique: Instructor says the first sound of the word that the child cannot remember. The child may then recall the word.

Verbal output

5. Materials: None

Technique: Instructor says a series of words related to the word that the child cannot recall, or names items in a series if the forgotten word is a number or letter. The child may associate the words and recall the desired word.

Verbal output

**Suggested Remedial Techniques for
Disorders in Syntax**

Problem

Suggested Techniques

Child cannot sequence words in sentences.

1. Materials: None

Technique: Instructor says a short kernel sentence. The child is asked to tell how many words he heard.

Note: This activity should be one of the first done in remediating syntactic disorders. It is used to ascertain that the child knows word boundaries.

Verbal output

2. Materials: None

Technique: Instructor says two sentences that vary only in word order. The child is asked to tell if the sentences are the same or not. Some control sentences using identical word order should be included.

Verbal output

3. Materials: None

Technique: The instructor says a sentence that may or may not be syntactically correct. The child is asked to tell if the sentence sounds right.

Verbal output

Problem

Suggested Techniques

4. Materials: 3x5 index cards; various colored markers

Technique: A syntactic structure is chosen, for example, _____ has a _____. Each class of words is written in the same color; for example, all words that could be the subject (*He, She, Johnny, Tommy*, etc.) are written in red, *has* is written in blue, *a* is written in green and all possible object words (*car, bike, shoe*, etc.) are written in yellow. Four cards having only one color on each are arranged in the correct sequence and displayed as a model for the child. The child chooses one subject and one object card — *has* and *a* remain. The instructor scrambles the four cards and tells the child to arrange them so that they say *Johnny has a car*, for example. The child should say the entire correct sentence when the cards are correctly arranged. The color-coded clue cards can be removed when the child knows the sequence.

Visual-motor and verbal output

5. Materials: "Developmental Sentence Types," by Laura Lee²

Technique: Refer to this material to select the developmental order in which grammatical structures are normally learned.

Problem

Suggested Techniques

6. Materials: Large cards or papers, each of which has one word of a sentence written on it

Technique: The words of a sentence are placed on the floor in random order. The child steps on each word in the sequence needed to make a correct sentence. He should say each word as he steps on it and then repeat the whole sentence. If the child cannot perform in this manner, say the correct sentence for him before he steps on any cards.

Visual, motor, and verbal output

Suggested Techniques for Remediating Disorders in Auditory Attention

<u>Problem</u>	<u>Suggested Techniques</u>
Child does not attend to verbal directions and comments.	1. Materials: None Technique: Instructor alerts the child when his attention is required by ringing a bell, tapping on the desk, saying a key word, such as "Listen," striking a note on the piano, or other device. Motor output 2. Materials: None Technique: Instructor purposefully makes absurd statements and encourages child to react. It may be necessary to act out the absurd statement, such as, "I'm going to get a drink of eraser," to gain the attention of very inattentive children. Verbal and/or motor output 3. Materials: None Technique: Play games such as <i>Simon Says</i> in which child is required to attend closely to what is said. Motor output

Problem

Suggested Techniques

4. Materials: None

Technique: Instructor gives directions which require the child's attention to determine when he is to act, such as, "All the boys who are wearing blue socks may get a drink."

Motor output

Suggested Techniques for Remediating Disorders in the Semantic Aspect of Language

Problem

Child does not understand that a word has more than one meaning, depending on the context in which it is used.

Suggested Techniques

1. Materials: Objects appropriate for specific words being used

Technique: Instructor places two objects or pictures on a table and tells the child to give him the one he needs. The instructor says one of a pair of statements, such as "I have a cold" or "I am cold" using objects such as a tissue and a sweater.

Have the child point to the correct pictures or objects according to the statement made by the instructor. Phrases such as "The boy rides *on* the bus," "The spoon is *on* the table," "The house is *on* fire," and other examples of different meanings of *on* should be demonstrated.

Visual-motor output

2. Materials: Blackboard, chalk, paper, crayons, etc.

Technique: Play word games where the instructor uses idiomatic expressions and acts out or asks the child to act out or illustrate the statement in as many ways as he can; for example, "time flies" can be shown as a fly with a clock for a body or as flies having a race and being timed with a stop watch; or

Problem

Suggested Techniques

show the passage of time by waiting. The absurdity of inappropriate interpretations should be pointed out.

Motor output

Child cannot accurately relate experiences that he has had.

1. Materials: Objects and pictures appropriate for concept being developed

Technique: Provide the child with many structured experiences where the instructor controls as many variables as possible. Some suggested experiences include making lemonade, studying kinds of fruits and vegetables, making ice, and getting a book from the library. By questioning and demonstrating, the instructor indicates the aspects of the experience which are significant. When completed, the child and instructor write about the experience in either pictures or words. Experiences should be simple and easy to describe. After the story has been written or drawn, the child relates it back to the instructor, referring to the story for help. *Many* experiences need to be structured in this way.

Verbal, visual, and motor output

Problem

Child has a limited vocabulary.

Suggested Techniques

1. Materials: None

Technique: Many times during the day the instructor tells the child another way to name something or expands what the child has said at the time the child uses a word. For example, if the child were to say, "I got new shoes," the instructor can identify the specific kind of shoes he has: sneakers, loafers, oxfords, saddle shoes, sandals, or buckle shoes.

Verbal, visual, and/or motor output

2. Materials: None

Technique: Instructor tells the child they are going to play a word game and provides a superordinate word such as *furniture*. The child points to as many items in the category as he can. The child is then encouraged to use the word *furniture* to tell what he found. ("I found a piece of furniture called a table.") Categories such as food, clothing, vehicles, machines, equipment, buildings, and places can be used.

Motor and verbal output

3. Materials: Objects of different sizes, shapes, colors, functions, and materials

Technique: Instructor tells child to give him an object that he describes

Problem

Suggested Techniques

but does not name. The child is then given a turn to let the instructor choose one he describes. As many qualities as possible should be included. ("Give me the pink, plastic one we drink from.")

Motor and verbal output

4. Materials: None

Technique: Instructor and child take turns playing "I'm thinking of something ____." Many qualities of an item should be described, but the item is not named and must be guessed.

Verbal output

5. Materials: None

Technique: Instructor and child take turns giving directions to each other to reach a hidden item or get to a certain spot in the room.

Motor and verbal output

6. Materials: Items in the room that can be used as obstacles

Technique: An obstacle course is set up by the instructor. The child is told to go over, under, around, between, next to, beside, and on top of the obstacles. When the child demonstrates that he understands the words, he should direct the

Problem

Suggested Techniques

instructor through the course.

Motor and verbal output

7. Materials: Geometric shapes that vary in size, shape, and color (*Attribute Games* published by McGraw-Hill is appropriate.)

Technique: The instructor tells the child which form to take by describing it according to big, little, or medium size; its color; and whether it is a circle, square, triangle, diamond, oval, or rectangle. The child should then describe one for the instructor to choose.

Motor and verbal output

**Suggested Remedial Techniques
for Problems in Left-Right Progression**

Problem

Child does not read or write from left to right.

Suggested Techniques

1. Materials: *Word Making Cards* (Word Making Products, Inc.) or other small pictures

Technique: Instructor names a series of pictures and has the child arrange them in correct order from left to right. The task can also be done by having the child match the instructor's arrangement of pictures. The instructor should stop the child if he progresses from right to left.

Motor output

2. Materials: Paper and pencil

Technique: Instructor marks the left side of the paper with a green line or mark and the right side with a red line or mark to serve as a reminder of where the student should start and stop writing.

3. Materials: *Michigan Tracking Program* (Ann Arbor Publishers) or similar teacher-prepared materials

Technique: A series of three to five shapes, pictures, numbers, letters, or words is displayed. The child is required to locate the same items when they are embedded in a random but left to right arrangement of other like materials.

Motor output

Problem

Suggested Techniques

4. Materials: String or other marker

Technique: Mark the child's left hand or the left side of his desk to remind him of the side from which he should start.

5. Materials: Large beads, peg boards, or colored blocks

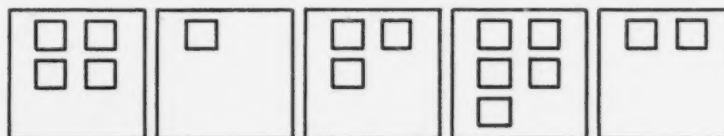
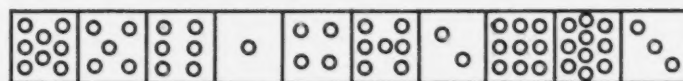
Technique: The instructor arranges one of the materials in a horizontal line. The child copies the model arranging it from left to right.

Motor output

In addition to the above techniques, the following chart, prepared by the occupational therapist at the Easter Seal Treatment Center, suggests materials which may be used to help remediate some areas of visual perception or visual-motor function.

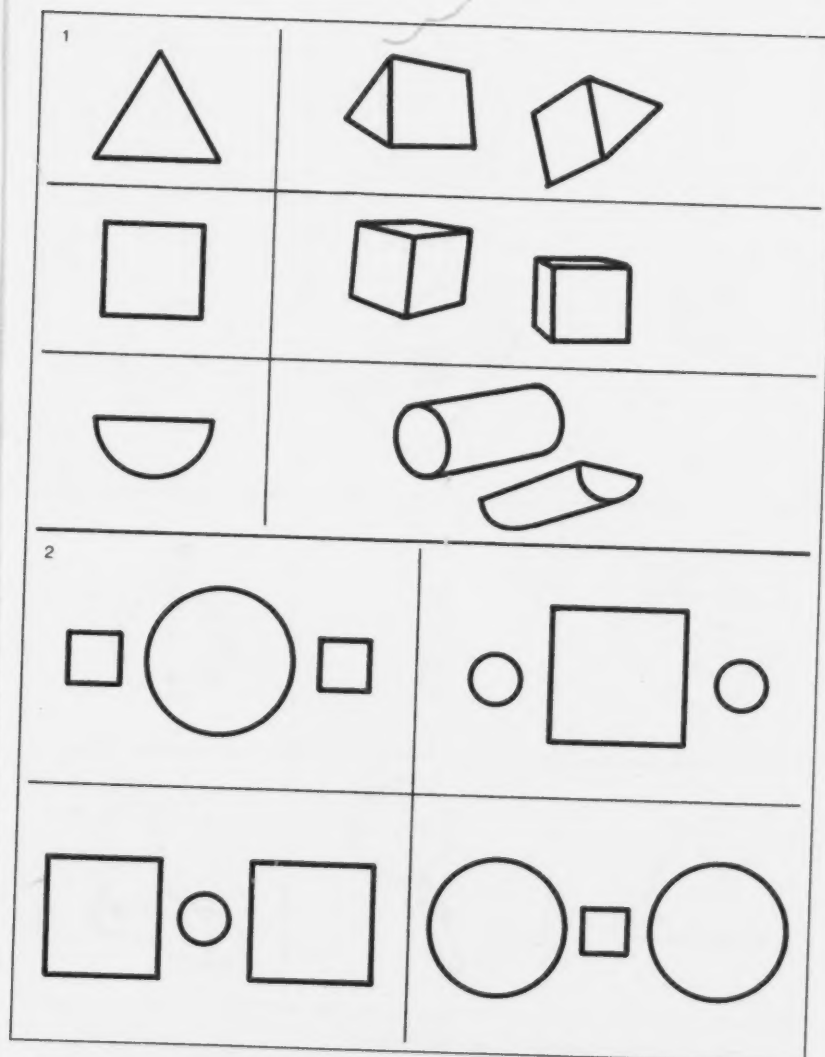
MATERIAL	Color Discrimination	Shape Discrimination	Size Discrimination	Visual Sequence	Visual Memory	Position in Space	Spatial Relations	Figure-ground Discrimination	Visual-motor
Standard Small Kindergarten Blocks		x	x	x	x	x	x	x	x
Natural One-inch Cubes					x		x	x	x
Colored One-inch Cubes	x			x	x		x	x	x
Peg Boards	x			x	x		x	x	x
Large Parquetry Blocks	x	x		x	x			x	x
Small Parquetry Blocks	x	x		x	x	x	x	x	x
Magnetic Blocks	x	x	x	x	x	x	x	x	x
Halsani Tiles	x	x		x	x	x	x	x	x
Color Cubes	x	x		x	x	x	x	x	x
Poker Chip Patterns	x	x		x	x		x	x	x
Picture Tiles (Mosaic)	x			x	x		x	x	x
Kohner Designer Kit	x	x		x	x	x	x	x	x
Toothpick Patterns	x		x	x	x		x	x	x
Geo Boards	x			x			x	x	x
Three-eighths-inch Beads	x	x		x	x		x	x	
Blockhead	x	x	x	x	x		x	x	x
Fit-a-Space	x	x	x				x	x	x
Sorting Boxes	x	x	x					x	
Wooden Puzzles		x					x	x	x
Paper Folding					x				x
Paper Puzzles Based on Geometric Forms							x		x
Cutting and Pasting	x	x	x	x	x	x	x	x	x
Shape Discrimination Boxes		x				x	x	x	
Frostig Worksheets		x	x			x	x	x	x
Continental Press Worksheets		x	x			x	x	x	x
Winterhaven Templates									x
Construction Toys	x	x	x	x	x	x	x	x	x

1	2	3	4	5	6	7	8	9	10
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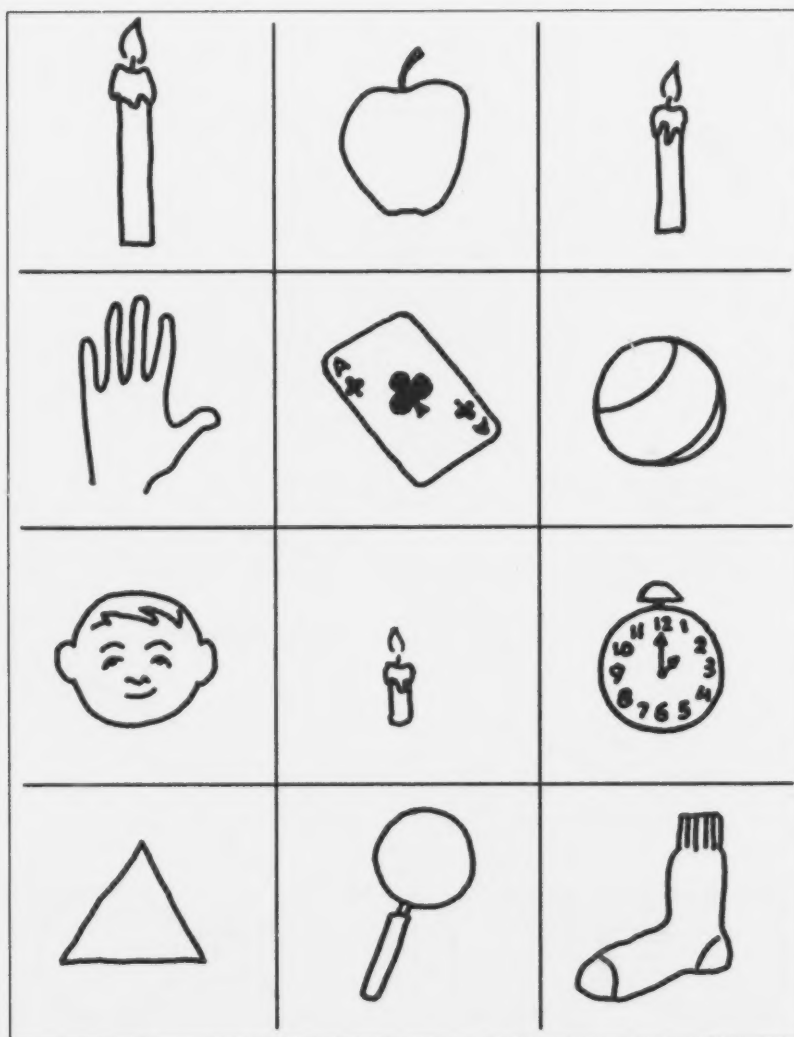


Sample Worksheet(s) Used in Joint Special Language Class

Math work that was done early in the year involved the use of manipulative materials. When worksheets could be used, some of the first ones were designed for: (1) recognition of patterns of like sets and, (2) matching number symbols to sets containing that number.



1. Shape discrimination, figure-ground discrimination, and position-in-space discrimination are required in this task. It is a reading readiness task to develop visual skills.
2. Directions for this paper are: *Mark the large square between the small circles. Mark the small circle between the large squares, etc.*



Listening activity. The directions for this worksheet are:

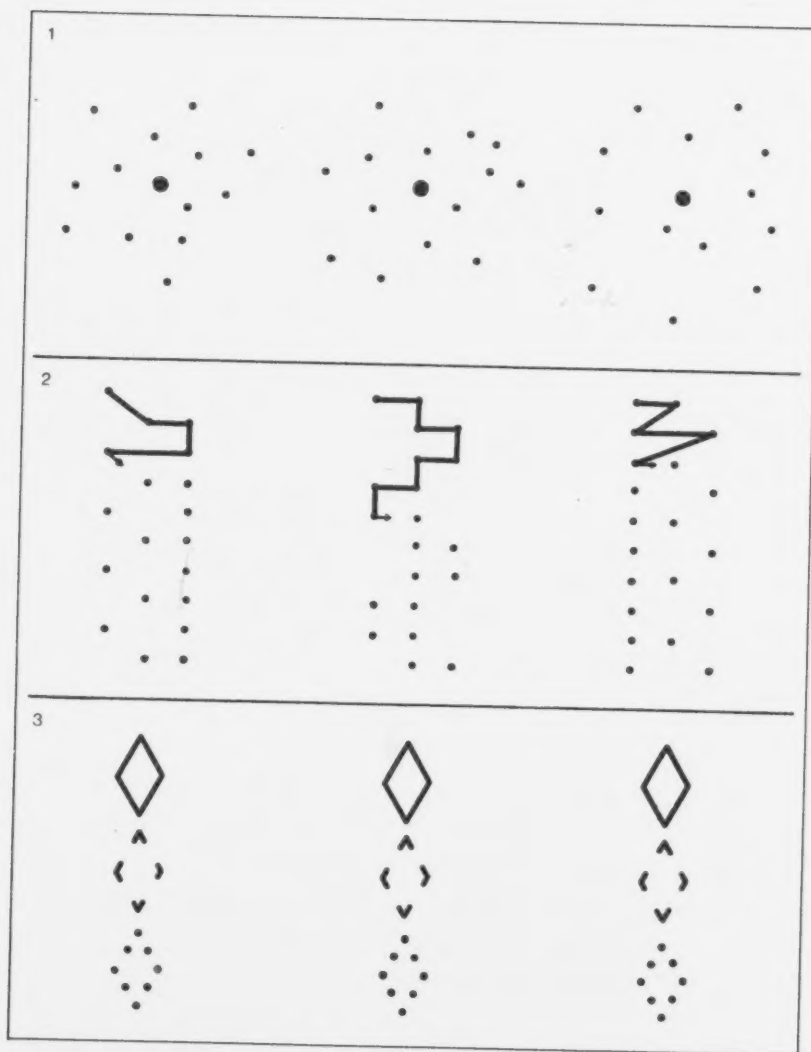
Get yourselves ready.

I will tell you to mark two pictures with two different colors.

Fold your hands.

Listen

1. Mark the ball black and the apple red. (Instructor counts to 3 silently, then says, Go!)
2. Mark the triangle yellow and the smallest candle green.



Prewriting Visual-Motor Exercises

Directions for performing these tasks are:

1. Draw a line from the big dot to each little dot.
2. Trace each pattern and then make it again until you run out of room.
3. Trace the first diamond. Connect the lines to make the next diamond. Connect the dots to make the last diamond.

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norton

h c o r p l w n k d o v m w t c a

o u v b s l h g v e r e i p d o v

v u p l a f e w v b l z q p o b t

d o v v o d w e d k j m n e x o v

t y u y d o v b s p d o l w n d k

r e i d o v p d o l w n d k j c a

(Hit) He is pushing the box.

(sag) The girl is walking.

(bug) The boy is pulling the wagon.

(hit) She is eating.

(ease) The baby is sleeping.

(bye) The boy is riding a horse.

(rig) The girl is swimming.

(inning) He is running.

These three items are designed to improve visual tracking skills, left to right progression, and following a line.

The child must mark the first letter or number in the series then track from left to right until he finds the next item in the sequence. The child must find all of the repetitions of the sequence.

He is walks. He is walking.	Melody is a girl. A Melody is a girl.
She is playing. She is played.	He a walks to school. He walks to school.
They are jumping. They are jump.	I want some drink. I want a drink.
We are goes to the zoo. We are going to the zoo.	Boys can run. A boys can run.
I am looks. I am looking.	A Miss Ellen is pretty. Miss Ellen is pretty.
She is eating an apple. She is eats an apple.	The grass is a green. The grass is green.

Exercises similar to those shown here were done orally for some language activities. The vocabulary for these written exercises was taken from experience stories the children had written. In many cases the teacher-therapist had to read the sentence pairs for the children. Even though they knew the words, their monitoring systems were not developed well enough to allow them to evaluate written material.

**Some Commercial Materials Used in the
Language Disabilities Class**

Books

Ginn Basal Readers and Workbooks

Merrill Linguistic Readers and Workbooks

Sullivan Programmed Readers

Pictures

Consonant Pictures For Pegboard — Ideal

Everyday Picture Set — Educational Teaching Aids (ETA)

Poster of the Month — Instructo, Beckly-Cardy Company

Seasons — ETA

Fall and Winter

Spring and Summer

Sequential Picture Cards I, II, III — Developmental Learning
Materials (DLM)

Singulars and Plurals Cards — ETA

Spatial Relation Cards — DLM

Story Maker's Classroom Conversation Aids — ETA

Teaching Resources Association Cards — Teaching Resources

Understanding Our Feelings — Instructo

We Read Pictures — Scott, Foresman and Company

What's Funny Cards — Speech and Language Materials, Inc.

Word Making Cards — Word Making Products, Inc.

Workbooks

Michigan Tracking Program — Ann Arbor Publishers

Primary Tracking

Symbol Tracking

Visual Tracking

Word Tracking

Shape Analysis and Sequence — Fitzhugh Plus Program Materials

Shape Completion — Fitzhugh Plus Program Materials

Shape Matching — Fitzhugh Plus Program Materials

Other Materials

Alphabet Cards — DLM

Animal Puzzles — DLM

Auditory-Familiar Sounds — DLM

Tape and Cards

Buzzer Board — DLM

Buzzer Board Pattern Cards — DLM

Day-by-Day Calendar — Milton Bradley

Dolch Phonics Game — Lakeshore Equipment Co.

Consonant Lotto

Vowel Lotto

Floating Magnets — Stansi Co.

Functional Signs — DLM

Indoor-Outdoor Thermometer — Stansi Co.

Liquid Duplicators — Continental Press

Useful Language Level I, II, III

Manuscript Type Printer — Beckley-Cardy Co.

People Puzzles — DLM

Polaroid Color Camera

Rhythm Instruments

Visual Perception Kit — ETA

Shape Analysis Cards

Symmetry and Reversal Pairing

World Traveler — Open Court Publishing Co.

Chapter 6

Timmy: An Illustrative Case Study

Timmy, a delightful friendly boy, puzzled everyone who encountered him on a professional basis. When he and his twin brother were three years old, they were brought to the Easter Seal Treatment Center. The referring complaint was that Timmy did not talk; he pointed and grunted to indicate that he was hungry, thirsty, had to go to the bathroom, or wanted an object. His twin had a much less severe language disorder which primarily involved auditory processing; while Timmy had impaired phonology, vocabulary, and syntax as well as problems processing auditory information. The case history as reported by Timmy's mother indicated that Timmy was the second born twin. No prenatal complications were reported. Labor was long and difficult and his was a breech presentation. Postnatal history revealed bulging fontanel; two episodes of high fevers of unknown etiology; viral diarrhea and dehydration requiring hospitalization; otitis media with ruptured drums; and mumps, measles, chicken pox, and whooping cough, all before the age of three.

Timmy and his fraternal twin were the youngest of eight children in the family, the oldest being twenty-four. His mother's description of the home indicated that Timmy was considered the baby of the family and was thus allowed to "get away with" more things than the others without being reprimanded. Timmy's father was a plumber retired on disability; his mother was employed as a neighborhood worker in an Office of Economic Opportunity project.



His mother's description of Timmy's speech and language development was too sketchy to be of value. To make himself understood, he pointed and used gestures; but at the age of three, he was using no words.

His motor development, including rolling over, sitting up, crawling, and walking, was inconsistent as reported by his mother. He crawled at eight months, sat at nine and one-half months, and walked between eighteen months and two years.

Timmy attended a summer nursery school program at the Easter Seal Treatment Center. During this time he received daily speech therapy, a great deal of language stimulation to develop concepts, exercises designed to improve listening skills, and gross and fine motor development exercises.

He was scheduled for continued speech therapy at ESTC during the following two years, but his attendance was sporadic. His family lived in a rural area of the county over twenty-five miles from ESTC, and his parents had difficulty transporting him. Consequently, his progress was minimal.

Timmy entered a kindergarten class in his area school when he was five. His teacher found his speech difficulties overwhelming. Timmy often failed to understand what he was supposed to do and was often frustrated by being unable to make himself understood by the teacher and the other children. At this time his speech consisted of one and two syllable grunts. His gesture system was very elaborate, and he was actually pantomiming situations. Whenever he did learn a word in his therapy session or a concept in his kindergarten class, he soon forgot it.

The school personnel were concerned about Timmy's academic program and what progress he could make in a regular school setting. The Montgomery County Public Schools offered several types of special education programs, but none was designed for a child with so severe a language disorder as Timmy demonstrated. By special arrangements, Timmy repeated kindergarten at Meadow Hall School so that he could go across the street to the ESTC for an afternoon language class. An intensive program based on the McGinnis method of teaching aphasic children was being used at the time.

The McGinnis approach as described by Kleffner is highly structured.¹ The method includes ten sequential steps in the teaching of language. Very briefly, these ten steps are:

1. Attention-building activities where the child imitates motor acts and then sounds made by the teacher
2. Teaching phonetic elements (sounds) using the written symbol as soon as possible
3. Teaching nouns, which consists of seven separate steps (These are listed separately.)
4. Repeating sentences
5. Writing animal stories
6. Introducing prepositions
7. Teaching present progressive or gerund verb forms
8. Writing advanced descriptive stories
9. Using past tense verbs
10. Creating imaginative stories

The sequence for teaching nouns is:

1. Teacher produces the sound sequence from the written form
2. Child matches picture to the written form of the word
3. Child copies the word and articulates each sound as he writes it
4. Child repeats the word after the teacher — first repeating the word using the individual phonetic elements, then synthesized into the whole word, followed by matching the picture to the written word

5. Child says the word from memory when he is shown the picture
6. Child writes the word from memory, saying each sound as he writes it
7. Child repeats the word after it is said in his ear, and he matches the picture to the written word

When Timmy entered the Title VI-A class for language impaired children as a first grader the following year, he gave the appearance of being a very warm, friendly, and accepting child. In many ways he was quite babyish. When he was not permitted to do what he wanted, he often cried; this was also his reaction when he could not make himself understood or was unable to do a task that was presented to him. He was readily accepted by the other members of the class. An initial sociogram done by the psychologist indicated that he was the most popular child in the class, despite the fact that he was very much a tattletale. During story time or listening activities, he tried to sit as close to the teacher as possible. When the activity involved sitting on the floor, Timmy wanted to be close enough to touch his teacher; if the activity entailed using chairs, he always wanted to sit next to the teacher.

He demonstrated some hyperactive behavior when he entered the class; that is, much of his activity was nongoal directed, and he appeared to be unable to control that behavior without help from the teacher. Several methods of controlling hyperactivity have been described in the research in the area of special education. Some children need to have the amount of stimulation in the environment reduced in order to control their own activity levels. Other children respond to being physically touched or directed. Timmy could control his behavior when he was verbally directed but needed almost constant reminding. This would seem to indicate a greater degree of self-control than that encountered in many hyperactive children. Teacher approval was a prime motivator for him. His mother appeared to be very accepting of Timmy and all his problems. His parents transported Timmy the twenty-five miles from his home to school and then came back for him in the afternoon. They were

anxious to help Timmy and were cooperative with school personnel. However, the mother often seemed to be an unreliable reporter. Details of his developmental history were reported differently to different people. She questioned the teacher's statement that Timmy behaved in an immature fashion, but on occasions she reiterated that Timmy was their "baby" and that it was hard for them to discipline him.

The psychologist's summary at the time of his entrance in the Title VI-A class follows:

Timmy is a fraternal twin from a large family which is culturally and economically deprived. Birth history was traumatic and he contracted numerous illnesses during infancy. Development was slow especially in the language area. At present Timmy is a lively, likeable seven-year-old who relates easily but is inclined to be impulsive and inattentive.

Current audiological testing indicates normal hearing for the acquisition of speech and language. An analysis of speech indicates multiple misarticulations of consonant sounds and consonant blends are not developed. Vowels in short words are articulated correctly. Running speech is difficult to understand but single words are occasionally intelligible. Oral mechanism is essentially normal though hard palate is high and steeple shaped and uvula deviates to his right. Diadochokinetic rate is slow.

Auditory memory is below the three-year-old level. Auditory discrimination is extremely poor. Receptive language is adequate in terms of chronological age for both single words and sentences. An analysis of expressive language revealed that Timmy speaks primarily in three-to-five-word sentences with good communicative intent. Single syllable words are generally used and grammar is poor. Expressive language tests consistently yielded scores one and one-half to two and one-half years below chronological age. Visual discrimination appears adequate. Scores on visual motor tests are inconsistent, ranging from two and one-half years below age level to six months

below. Visual memory scores are also somewhat inconsistent but reveal no serious deficit in this area. Timmy shows no clear cut pattern of dominance. Fine motor coordination is adequate for his age but there is some inconsistency in performance involving eye-hand coordination. Gross motor coordination is also inconsistent with performance ranging from age level to approximately two and one-half years below age level. A reading evaluation indicated that Timmy is functioning at the reading readiness level. Arithmetic skills are at a low first grade level.

Intelligence testing with nonlanguage tests yielded scores in the average range of ability. Wide scatter among subtest scores should be noted however. Language intelligence scores would no doubt have been considerably lower. It appears that Timmy is severely handicapped in the auditory channels. The impairment primarily affects expressive language. The motor and visual modalities are only slightly impaired and the handicap in these areas is primarily reflected in visual-motor functioning.

Language

When Timmy entered the Title VI-A class, his language was still impaired at the phonologic, semantic, and syntactic levels; and auditory processing problems persisted.

At the phonological level, he omitted many sounds and made numerous substitutions of incorrect sounds and distortions of other sounds. The motor production of sounds, particularly in words, was a difficult and laborious task for Timmy. The production of sounds was not automatic. The initial indication was that Timmy might be apraxic; that is, in the absence of paralysis or paresis of the mechanisms involved in speech production, he was unable to move the articulators voluntarily to produce a phoneme or phoneme assembly. This diagnostic hunch was confirmed as Timmy was observed over a longer period of time. Single words were occasionally intelligible.

At the semantic level, Timmy appeared to have adequate nonverbal concept formation. He manipulated objects to

demonstrate their relationship to each other, and he showed a great deal of curiosity about his world. Verbally, however, he used very few words. His curiosity was expressed by his asking "What that?" about things that interested him. His verbalizations were concrete, pertinent to the moment, and about things in sight. In order for him to understand conversational speech, sentences had to be short and without complex structure. His scores on tests measuring comprehension fluctuated; the nature of the task, directions for performing the task, and condition at the time of the test also influenced his performance.

Instead of using words to relate a story, Timmy used an elaborate system of gestures. Again, this behavior demonstrated comprehension of events but a lack of words to describe those events.

At the syntactic level when he entered the Title VI-A class, Timmy was primarily using single words and two-word combinations. Only two per cent of his verbalizations were in the form of kernel sentences. An attempt was made to elicit a sample of fifty sentences for analysis. This effort met with complete failure. Timmy did not produce enough sentences to analyze. An initial inventory revealed the following distribution of utterances:

Single words	56%
Two-word combinations	22%
Constructions	20%
Sentences	2%

It should be noted that the number of utterances analyzed was small; Timmy simply didn't talk much. When the teacher showed picture cards, some of his verbal exchanges went like this:

Teacher: "It looks like the dog is going to run away."

Timmy: "Where?"

Teacher: "In this picture. See, he broke his chain."

(Next picture is shown)

Timmy: "Look, came home."

Or, in another sequence with the teacher showing pictures, the conversation went like this:

Teacher: "Timmy, tell me what is happening in these pictures. We will look at them one at a time; and when we finish, the pictures will tell a story. Do you understand?"

Timmy: "Yes."

Teacher: "OK. Here is the first one. Tell me what is happening."

Timmy: "Balloon."

Teacher: "Do you want to tell me more about that one."

Timmy: "No."

Teacher: "OK. Look at the next one. Tell me what is happening."

Timmy: "All up."

Teacher: "It looks like the balloon is blown up all the way, doesn't it? Look at the next one. Tell me about it."

Timmy: "Balloon pop."

Teacher: "He blew it up so much that the balloon popped. Do you think he meant to do that?"

Timmy: "No."

Teacher: "Tell me about the next picture."

Timmy: "Hear him balloon pop."*

Teacher: "He looks surprised, doesn't he? When he heard the balloon pop it surprised him."

The initial inventory of his auditory skills and behavior revealed marked difficulties. Timmy's ability to remember auditory stimuli was equivalent to that of a three-year-old. His memory span was short for digits, words, and sentences. As a result his speech efforts were marked by disturbances in sequence; phonemes in words occurred in a mixed up order. He also had difficulty remembering nonverbal auditory stimuli. He needed many exposures to a word before he could remember it. He appeared to have difficulty recalling words at the appropriate time; as mentioned earlier, further investigation pointed out that he was also apraxic. His ability to discriminate between two speech sounds that were minimally different was poor. He could adequately discriminate gross differences between sounds, rhythms, and volume; however, when there was noise in the background, his discrimination ability was even further impaired. He could listen to directions, stories, or a conversation for only short periods of time because it required too much concentration for him to listen for an extended period of time.

Some areas of visual skills were also impaired. Test results indicated some problems in figure-ground discrimination and eye-motor coordination. His test results in visual areas remained markedly inconsistent; on different tests which were essentially assessing the same thing, his performance fluctuated greatly. He showed no clear-cut evidence that dominance was established. While visual memory was not significantly depressed on standard measures, he had a great deal of difficulty remembering how to form letters, particularly in regard to spacing and size. He also demonstrated difficulty forming shapes, numbers, and letters within lines and spaces.

*"Balloon pop" was the only kernel sentence used.

Some gross motor activities such as walking on a balance board and high jumps were at age level; but broad jumping, catching a ball, hopping, and standing in a heel-to-toe position were below age level. More problems in motor coordination were noted in Timmy's day-to-day performance than were indicated by the testing results.

An inventory of reading skills and abilities indicated that in the auditory area he was unable to blend sounds into a word or synthesize sounds in a word by identifying the individual phonemes within a word. He could not rhyme words. He could visually match shapes, forms, letters, and words. The difficulties in visual memory, figure-ground discrimination, and eye-motor coordination were evidenced in his inability to remember printed words even after many exposures.

bloc rnd Green wellaw

After much practice writing color words with the sample present, Timmy was asked to write *blue*, *red*, *green*, and *yellow* from memory. (Fifth month in the class.)

Most reading errors that he made were in the form of substituting a word that had the same general configuration as the word in error. For example, he might have said "bath" for "ball" because these words have the same configuration, b a l l - b a t h. Some errors were made on the basis of the initial letter only, such as "tell" for "table" because they started with the same letter. He could name five capital letters and three small letters. He knew four per cent of a selected group of preprimer words.

Timmy understood that numbers represent quantities of things. He could name number symbols to twelve. He was not able to perform any addition, subtraction, multiplication, or division operations. Many problems were noted when attempts were made to teach written problems; these difficulties were related to his impaired abilities to use symbols in oral or written forms. Timmy used the symbols +, -, and = interchangeably and did not understand the significance of the sequence of numbers and

symbols in a problem. To him $1 + 2 = 3$ was the same as $3 + 2 = 1$ or $1 = 2 + 3$.

When Timmy's strengths and weaknesses had been identified, the staff met to decide what each member would do.

The occupational therapist was primarily concerned with Timmy's motor performance in both fine and gross motor skills. She was also concerned with deficits in the visual area. A general outline of the materials she used with Timmy follows:

1. Worksheets having intersecting or hidden figures for practice in figure-ground discrimination
2. Visual discrimination cards for sorting and sequencing improvement (Sorting tasks also involve a degree of concept formation at a nonverbal level.)
3. Color cubes, beads, Halsam tiles, simple dot patterns, and "concentration" game for sequencing, position in space, and visual memory
4. Parquetry block patterns to develop an organized approach to a task and also figure-ground practice
5. Selected Frostig worksheets for figure-ground discrimination and visual-motor and spatial relations
6. Therapist-prepared visual-motor coordination worksheets for prewriting and writing practice
7. Winterhaven templates for fine motor training
8. Michigan Symbol Tracking Book for visual memory and sequencing
9. People puzzles for development of body image concept

In addition to the tasks performed in individual therapy sessions, classroom work supplemented that provided by the occupational therapist. At midyear the occupational therapist

and teacher decided to do different types of tasks but not to counter the activities of the other. In the classroom, activities for visual memory, figure-ground discrimination, and eye-motor coordination were limited to the areas of reading and writing that were affected by those deficits. It was then not "more of the same" for Timmy but practical application of the skills that the therapist was helping Timmy develop.

In the auditory area, activities designed to improve discrimination of speech sounds, to lengthen auditory memory span, and to improve ability to sequence auditory stimuli were provided. Discrimination of phonemes, words, and sentences was necessary for vocabulary and syntax to develop. The first discrimination activity was to have Timmy identify a sound when he heard it again. To do this a phoneme was sustained and was recorded on the tape recorder. The teacher then said a series of sounds, one of which was the phoneme being played on the tape recorder. Timmy told the teacher when the sound on the recorder and the sound she was making were the same.

This discrimination activity eliminated the memory factor which could have interfered with his auditory discrimination testing performance. He was able to do this matching activity without difficulty. The next step was the presentation of the phoneme [k]; an increasingly larger number of phonemes were presented in isolation, and Timmy was asked to tell when he heard [k] again. First one sound was inserted between the model phoneme and the recurrence of that phoneme. A sample activity was as follows: "Listen Timmy. I am going to say a sound. Then I will say some other sounds. Tell me when I say the first sound again. Here is the sound, [k]. [p], was that the sound? [k], was that the sound?" The question after each phoneme was omitted as soon as it was felt that he understood the directions. "Here is a sound, [p]. Tell me when you hear it again. [p] [t] [m] [p]." One additional phoneme was inserted each time. The Language Master was used when Timmy could match a phoneme after having had four other phonemes inserted between presentation of the model phoneme.

Words cannot be sustained as readily as individual phonemes can, making it more difficult to design activities for

discriminating words that do not involve auditory memory. The phoneme variation in words has to be retained at least through the presentation of two words. The same matching technique as that for discriminating individual phonemes involving the use of the Language Master was used, but with words instead of phonemes on each card. To put discrimination on a meaningful level paired pictures of objects were used. Pictures were chosen because of acoustic similarity: *box - fox, house - mouse, man - pan*, etc. The pictures were named, and Timmy was asked to match the picture to the Language Master card having the word. In group activities, the teacher told one of the children to get a picture or object she named; the rest of the children evaluated whether or not the child had chosen the correct one. Everyone's discriminatory ability was being used.

For Timmy and for all children, the ability to discriminate between similar sounds and phonemes is important only as it aids or improves their communicative ability. Individual phonemes rarely occur in conversational speech; isolated words are also infrequent in normal conversation. As soon as Timmy understood the importance of discriminating between words that sounded similar and the consequences of errors, the discrimination task was changed to making a distinction between words in sentences and between similar sentences. This was done on a meaningful level. The same pictures were used; but instead of the teacher saying one word like *fox* she said, "Give Skip the fox" or "Sit on the fox" or "Put the fox under the table." Every effort was made to make these activities enjoyable.

To discriminate between similar sentences, two minimally different sentences were paired. Timmy's task was to tell the teacher if the two sentences she said were the same or if they were different. At other times a flannel board was used. Sentences like "The ducks swim" and "The duck swims" were demonstrated for him so that he would know the two sentences represented different phenomena. He was then asked to show the one repeated by the teacher by appropriately manipulating the flannel figures.

Activities for discrimination of auditory signals were continued throughout the two years that he was in the program. Difficulties encountered with Timmy were most often in interpreting if he were purposefully making errors in a playful way or if he truly did not discriminate the items correctly. As in all areas of his performance, Timmy could only control his behavior for a certain period of time; and then his tendency to become hyperactive interfered.

Comparatively little time was devoted to practice in discriminating individual phonemes and words. Most of the activities for discrimination of sentences were casual and related to activities being done that had not been planned specifically for auditory discrimination.

The results of the tests for auditory memory administered when the children entered the class and subsequent tests at the end of each year demonstrated that even when verbal output improved auditory memory spans did not increase. It can be reasonably hypothesized that the child who has a short auditory memory span learns some compensatory mechanisms that help him. He may write down phone numbers instead of trying to remember them. He may pick key words that help him organize and remember what has been said to him. In some cases impaired auditory memory does not appear to affect the functioning of an individual. However, Timmy needed ways to help him remember auditory signals. He was not able to remember sentence forms and thus had not discovered syntactic patterns; he was also unable to remember what he had been told or asked to do.

The language clinician at the Easter Seal Treatment Center also devoted a large portion of her therapy time to this area. Pictures were given to Timmy, and he was asked to give specified ones back to the therapist. The number of pictures he was to give her gradually increased. The SRA Learning to Think Series, *The Red Book*, was also used. Several objects were printed in a series; Timmy was told which ones to mark. Again, the number of items he marked was gradually increased. Visual clues helped Timmy remember what he had heard. Syntactic structures were written on cards with one word on each card and each card a

different color. Timmy sequenced the cards in the order in which the therapist said them; if he did not know some of the written symbols, the color of the card provided another clue. Sometimes they put the cards in the right order on a table, and at other times the cards were put on the floor; Timmy then stepped on the cards in the order in which they occurred. To help Timmy remember multisyllabic words, key sounds and the accompanying visual pattern were given. For example, *b-t-f* was written for him to help him remember the auditory pattern for the word "butterfly."

In remediating auditory memory difficulties, as in the remediation of auditory discrimination activities, much of the teaching was incidental and related to the classroom activity of the moment.

One of the clinician's concerns was the dyspraxia which Timmy demonstrated. She organized some exercises to develop tongue mobility. A mirror was used frequently to show Timmy where his tongue was supposed to be to produce specific sounds. He was taught sequences of two or three tongue movements, first without sound and later with accompanying sounds.

Sounds and sound combinations that Timmy did not produce adequately were selected in conjunction with syntactic patterns being emphasized. [s] was stressed as the morphological ending required on the verb when the third person singular was used. "He walks," was used; *ing* was taught in conjunction with the present progressive verb form, "He is smoking a pipe."

Some individual words were stressed as they occurred in therapy or in class. When Timmy had difficulty saying a specific word, or when he could not make himself understood because of difficulty with a word, it was dealt with at the moment at which it occurred. This was one of the bonuses of a therapist-teacher; errors could be dealt with at the most appropriate and most meaningful moments.

Timmy had little difficulty at the nonverbal level (grasping concepts), but he had very few words to describe and relate incidents. He seemed to bubble with ideas and news to tell, but

he couldn't express what he was thinking. He usually came into school rather groggy from getting up early and traveling the long distance. But after a few minutes, he would come to the teacher's desk with his eyes twinkling and wide open, an anxious look on his face, and one hand poised and ready to gesture. When he got to the desk, the anxious look changed to a puzzled one; he would stare at the teacher and say, "Ummm." "Do you have something to tell me, Timmy?" "Ummm." "Did something happen at your house?" "No. In car. Me saw . . . big wreck. Daddee stop . . . uhm . . . man get killed . . . uhm . . . ambulance come . . . man bleeding . . . uhm . . . milk truck . . . go down bank . . . on fire." "When did this happen, Timmy?" "Uhm . . . today." "Where did it happen?" "Uhm . . . on big hill."

His story was accompanied by elaborate gestures showing the positions of the trucks, the curves in the road, and the collision itself. When telling stories like this, his inflectional pattern reflected excitement and interest. By questioning him, it could be found that he understood what was happening; but he could not organize his ideas, recall words, or remember the motor pattern to produce those words which he could recall.

While most of the remediation for Timmy's semantic problems had to occur in the classroom when he made errors or when he encountered a situation that wasn't clear to him, the ESTC speech clinician did carry on some activities designed for vocabulary development and usage. Some of these were labeling activities such as naming pictures at leisure and then more rapidly or recalling the label when something was described for him. Word opposites were taught by using polar pictures, e.g., a picture of a boy in front of a chair and another one showing him in back of the chair. The word "opposite" was used to mean "the other one." "The boy is not in front of the chair. Where is the boy?" "In back of the chair." "'In front of' is the opposite of 'in back of'." Other word pairs were taught in this way. The pictures were then omitted and Timmy was asked, "What is the opposite of 'in back of'?" Some associated words were also taught to teach the relationship of words: "bread and butter" and "knife and fork."

Syntax was Timmy's most impaired area of language. The first step in the remediation task was to decide where to begin. Since he was using some constructions, we decided to start at the level of developing consistent use of kernel sentences.

Considering his very short auditory memory span, the length of the kernels was limited to three words. "I eat meat." "I eat candy." "I eat cookies." Series of short, patterned sentences were used, changing only one word at first. The material was varied so that Timmy (and the ESTC and school staff) did not become painfully bored with the activity. Pictures of things that Timmy might eat would be placed face down on the table; he picked one and used it in the pattern. Pictures were selected so that no article would be required to form a correct kernel. The verb was then changed and another series of three-unit kernels was begun: "I play ball." "I play cards." "I play cars."

When Timmy produced this construction in spontaneous speech or without any clues from the clinician in the therapy session, exercises were introduced to develop pronoun-verb agreement using forms of the verb *to be*. Color coding clues were given; *he* and *is* were written in red and *they* and *are* were written in green. Timmy would pick the two words that were the same color, read those words, and add an object. "*He is* making popcorn." "*They are* making popcorn." A picture of an activity was used to provide the predicate of the sentence.

The negative transformation following the rule *insert "not" after the auxiliary verb* could logically be applied next. Pairs of pictures were shown. "They are making popcorn." "They are *not* making popcorn." Forming the negative transformation using an obligatory *do** came much later.

Even though Timmy's memory for words, both oral and written, was poor, using the written word to reinforce and to teach word order was very helpful to him. Individual words were printed on 3x5 index cards. Cards that if sequenced correctly would say "they are making popcorn" would be given

*To change the kernel sentence "He has a new bike," to the negative, a form of the verb *to do* must be added. "He does not (doesn't) have a new bike."

The clinician was primarily concerned with phonology and syntax; but sometimes "units" were planned, and the sentences used for syntactic development pertained to the units. This arrangement presented many opportunities for vocabulary development. For example, one unit was "games." A sentence that the therapist might have used for the "is ---ing" construction was "The boy is kicking the football." To develop the concept of "football," the therapist could have asked, "Do you kick a baseball?" "Why not?" "What would happen to your toe if you kicked a baseball or a golfball?" "What is inside a football?" "What is inside a golfball?" Both types of balls could be opened to show what was inside. This pattern of asking a series of questions is often necessary to guide a child to learn what to look at in the environment, how to make connections, and especially how to talk about things he understands.

Timmy was interested in science and could draw a tree and explain by his drawings how it grew. He couldn't remember the names of parts of the tree; and he couldn't sequence his ideas orally; but he showed by his drawing that he understood much about the growth. He was very observant of things going on around him, but most of his questions about those things were limited to "What that?" as if he wanted names to talk about things. Again, questioning and probing were the methods of helping Timmy find significance in the world around him. This questioning took place when Timmy ran into a situation he didn't understand and in situations set up for him in class.

World Traveler, a biweekly publication by the Alexander Graham Bell Association for the Deaf² written for children with a reading level of third grade, was used the second year for social studies. It is a particularly good publication for language-impaired children; the pictures are attention-retaining, and the stories can be rewritten at lower reading levels or can be read to the children. Timmy enjoyed this publication and mentioned items from it in class "chat times." Various other activities in social studies including field trips to the zoo, the park, an airport, a bowling alley, and a police station were used in conjunction with concepts being developed.

to Timmy in random order. He would then manipulate the cards until he formed a grammatically correct sentence. If he needed help with any of the individual words he was, of course, helped. When he had the cards sequenced correctly and had read the sentence, he was given the word *not* and told to put it in the correct place. If he made an error, the sentence was read to him as he had it arranged; and he was asked if it sounded right. If his judgment was inaccurate, he was told that it was not right; and the cards were arranged in the correct sequence. An attempt was always made to force Timmy to monitor his own speech.

The next transformation developed was the interrogative, involving reversing the subject and auxiliary verb. (There are several other ways of forming the interrogative, but the most basic was done first.) "He is holding the ball." "Is he holding the ball?" Most of the activities the therapist did included the use of the written symbols. Timmy placed each word in the sentence on the floor in the correct sequence; then he stepped on each word in sequence as he said the word out loud. When he completed the sentence, he repeated it again as a whole.

Some phrases were taught as stereotypes, as if they consisted of one "megaword" instead of a group of words. This was accomplished by using the phrase at the beginning of a sentence and having him choose one of several alternatives to complete it. This tended to enable him to use longer sentences but still only the number of units within his auditory memory span. Those phrases were "I want to _____," "Can I have _____?"* "Do you have news?" and "How are you?" Noun phrases were expanded by including modifiers, and then those phrases were incorporated into sentences. Some sentences taught were: "She is wearing her blue coat." "One man is wearing a hat." "The other man is not wearing a hat." This type of exercise was designed not only to enable Timmy to use longer sentences but also to learn what qualities to note in order to be more communicative.

*The purist may object to the use of *can* instead of *may*. However, "natural" sounding language was the goal.

Many morphological endings were used in exercises to correct articulation errors. Specific morphological endings taught were *ing, s, z, es, and ed*.

Reading

Preparation for reading in books was begun when Timmy entered the class, but it wasn't until the second year of the program that the traditional approaches to teaching reading were employed with him.

The initial analysis of Timmy's formal and informal testing had yielded the following pertinent reading readiness information:

- Auditory memory – severely limited
- Auditory discrimination – impaired
- Auditory sequencing – impaired
- Visual memory – limited
- Visual sequencing – impaired
- Visual figure-ground discrimination – impaired
- Eye-motor coordination – impaired
- Position in space judgment – adequate
- Form constancy – adequate
- Spatial relations – adequate
- Coding ability (as measured by WISC) – very poor
- Reasoning when no verbalization required – good
- Gross motor performance – below age level

The more areas investigated the more discouraging it became. There was no area of particular strength and every channel – auditory, visual, and motor – had severe deficits. The basic approach of this class was to teach, using the strengths to overcome or compensate for the weaknesses.

Timmy's first stumbling block to reading was obviously his lack of command of oral language. All the auditory skills activities and vocabulary development activities were building blocks for reading.

Short experience stories based on day-to-day occurrences were used from the beginning. The goal for using these stories was

primarily to give Timmy visual markers to help him remember the sequence of events in a story and to demonstrate the relationship between oral and written language.

He enjoyed reading these stories and making class books using them, but he was able to learn only a very few of the individual words they contained. The original goal was achieved, but it was evident that he could not acquire a sight vocabulary by this method.

It seemed appropriate because of his increasing abilities to use spoken language and his interest in reading books to choose a published program for teaching him reading. The approach had to be one that did not rely heavily on auditory memory or visual memory. Since his ability to discriminate auditory information was poor, it seemed inappropriate to use a purely phonetic approach. Timmy could not handle several types of stimuli at the same time, such as talking and copying, or singing and gesturing; thus a multisensory approach also seemed inadvisable.

With the knowledge that any approach was going to require modification and flexibility, the Merrill Linguistic Readers were selected as the initial basic text. The rationale for using this method was that because the words were patterned (*nat, cat, bat, etc.*) the number of possibilities Timmy had to choose from was limited. While the teachers' manual for these books states that the names of the letters of the alphabet should be taught, Timmy was taught the sounds the letters make instead. His memory for whole words and his visual discrimination were not dependable enough to enable him to recall words without another type of help.

Worksheets were designed to improve Timmy's visual areas, and a systematic phonics approach was begun following the order of introduction of letters in the Merrill Linguistic Readers.

Some of the worksheets were aimed at developing awareness of internal detail and external configuration of words. Writing words and letters was practiced daily to reinforce the motor pattern and strengthen the visual memory of each new word or letter.

The Merrill program uses the short *a* as the first vowel sound in patterned words. Therefore, this sound was the first used in the phonics exercise. Consonants were selected on the basis of their introduction in the Merrill readers. *N, t, c (k), m, d, f, h, p,* and *b* were the beginning consonants. This letter-sound association drill appeared to aid Timmy's auditory discrimination and auditory memory because it provided a visual stimulus to which he could refer for recall of the auditory pattern.

His progress, as expected, was very slow. Whenever a new pattern was introduced, he persisted in using those he knew. He found the new material hard to incorporate. He did learn some sight words, he made symbol-sound associations, and his interest in reading improved. But the major drawback of this method was that he could not move the articulators rapidly enough to say the words even when he knew them. His blending ability was also poor, and he continued to have difficulty synthesizing sounds into a meaningful word. He did not get a gestalt from the individual sounds.

After one semester the Merrill readers were abandoned. Even though he had profited from the approach, it was obvious that he could not make much more headway using them.

The same types of exercises were continued — visual, phonetic, and motor — but now Timmy was given the Ginn readers. His success in this series was minimal. This series primarily utilizes a sight approach, and the words are to be memorized. Timmy could not remember the words using sight alone. A persistent and expected problem in every approach was comprehension of what he read.

Towards the end of Timmy's second year in the class, the "organic" approach to reading was introduced. In this method the child himself chooses the words he wants to read. He immediately writes a story using his words and getting the spelling for any words he needs from the teachers. Using this approach Timmy's comprehension improved tremendously. (Sample is dated May, 1970.)

Last night I was scared
 I heard thunder.
 The thunder came fast and
 scared me in the camper.

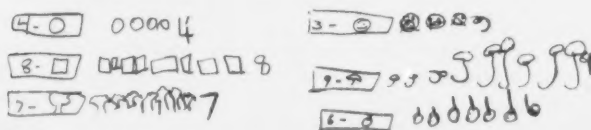
When he left the program, Timmy was reading enthusiastically at a low first grade level.

While it may appear that a hodgepodge of approaches was used, each method selected had a sound basis for being used *at the time*. As his skills changed, the program was changed. This flexibility was essential to Timmy's learning to read.

Mathematics

The Stern math materials were used to develop the concept of numbers and combinations without the use of symbols. Manipulating blocks and combining sticks to make equivalents was the primary math work for the first few months. Other manipulative materials were also used to teach arithmetical relationships.

The next step was using symbols to express the relationships. Making the "story" of five, six, etc. was done using the Stern blocks, and these "stories" were written down in a math book. (See sample.)



Other addition problems were performed using manipulative materials. An attempt was made to follow the general outline of the Montgomery County Public Schools curriculum guide for first and second grade math.

During his second year in the program, Timmy left the classroom and went to a regular second grade classroom for math. He performed at a low second grade level. His primary problem during this second year was no longer an inability to perform operations but rather his general behavior. He remained very distractible and was generally characterized by immature behavior. He always raced with Melanie to finish his work first, was overly concerned with having the right answer, and became tearful when he was not right.

Results:

In April of 1970 Timmy's family moved to Florida. However, because his parents were so concerned about Timmy's schooling, they arranged for him to stay in Maryland to finish the school year. Timmy and his mother lived in a camper until school was over in June. The separation from his father and siblings was very upsetting to Timmy, and his general level of behavior and academic performance reflected his unhappiness. The psychologist's summary in May, 1970 follows:

This evaluation was made to assess progress this year after Timmy has attended an experimental/demonstration class for children with specific language disabilities for the past two school years. Test performance continues to indicate average intellectual potential, but his low tolerance of frustration handicaps performance because he gives up too easily.

Timmy has made the most significant progress in expressive language, although he still has problems in this area. Overall intelligibility has improved because of improvement in articulation, sequencing of sounds, grammar, and syntax. Carry over from therapy is inconsistent, but when Timmy concentrates on monitoring his speech, intelligibility improves. Coordination and speed of tongue

movement have also improved. Performance on auditory memory and discrimination tests continues to be below average. The auditory evaluation again indicated normal hearing acuity for speech-language acquisition.

Performance on tests involving visual perceptual skills were more inconsistent this year. On the ITPA, visual decoding (reception) decreased and auditory decoding increased (a reversal of the direction of change last year), leading to speculation that Timmy may not be able to use both receptive channels effectively at the same time. Other visually oriented tasks on the ITPA were approximately at the same level as last year. Since performance on most Frostig subtests showed a minimal change in raw scores, the reliability of the change in age scores is questioned.

Inconsistent performance was also seen on visual-motor tasks. Gross motor skills have improved slightly, but no tasks on the Oseretsky were performed at the eight-year level. Timmy was not well motivated for this task, however.

Timmy continues to be unable to use phonic skills effectively, but is slowly picking up sight vocabulary. He still works better with a limited amount of visual material to work with at one time. Progress has been adequate in a second level math class.

Inconsistencies in Timmy's performance patterns this year and in comparison to last year emphasize the complex nature of his difficulty. Timmy has made progress, but continues to demonstrate the need for specialized language training. It has been recommended to his parents that they investigate educational possibilities for help for Timmy in their new area.

Timmy's greatest and most evident progress was in oral expression. When observed in May, he was heard saying such appropriate sentences as "I could not work at that desk," "I can see boys riding bicycles," and "There is a girl jumping rope." The staff noted other samples of speech in which there were

incorrect kernels or faulty transformational structures, but his general level of conversation was greatly improved.

The graph at the end of this chapter illustrates Timmy's testing performance at the beginning of the program and when he left. His very inconsistent scores can be best explained by his great growth in language functions. That this growth occurred in spite of little or no progress in the areas of auditory processing seems to indicate that he learned ways to compensate for deficiencies in those areas.

While it was certain that he was not changed into a child who could perform at a second or third grade level, Timmy had made sufficient progress to warrant the prediction that he would continue to learn in a new situation. He had acquired a great many skills but still had not integrated them. Even when he sounded out a new reading word, he did not necessarily understand what the word meant.

Timmy: "D - a - d. Dad"

Teacher therapist: "What is that word Timmy?"

Timmy: "Dad."

Teacher-therapist: "What is *dad*? What does *dad* mean?"

Timmy: "I don't know."

Teacher-therapist: "Is *dad* a place?"

Timmy: "I don't know."

Teacher-therapist: "Who is your dad? What does your dad do?"

Timmy: "Dad! Daddy!"

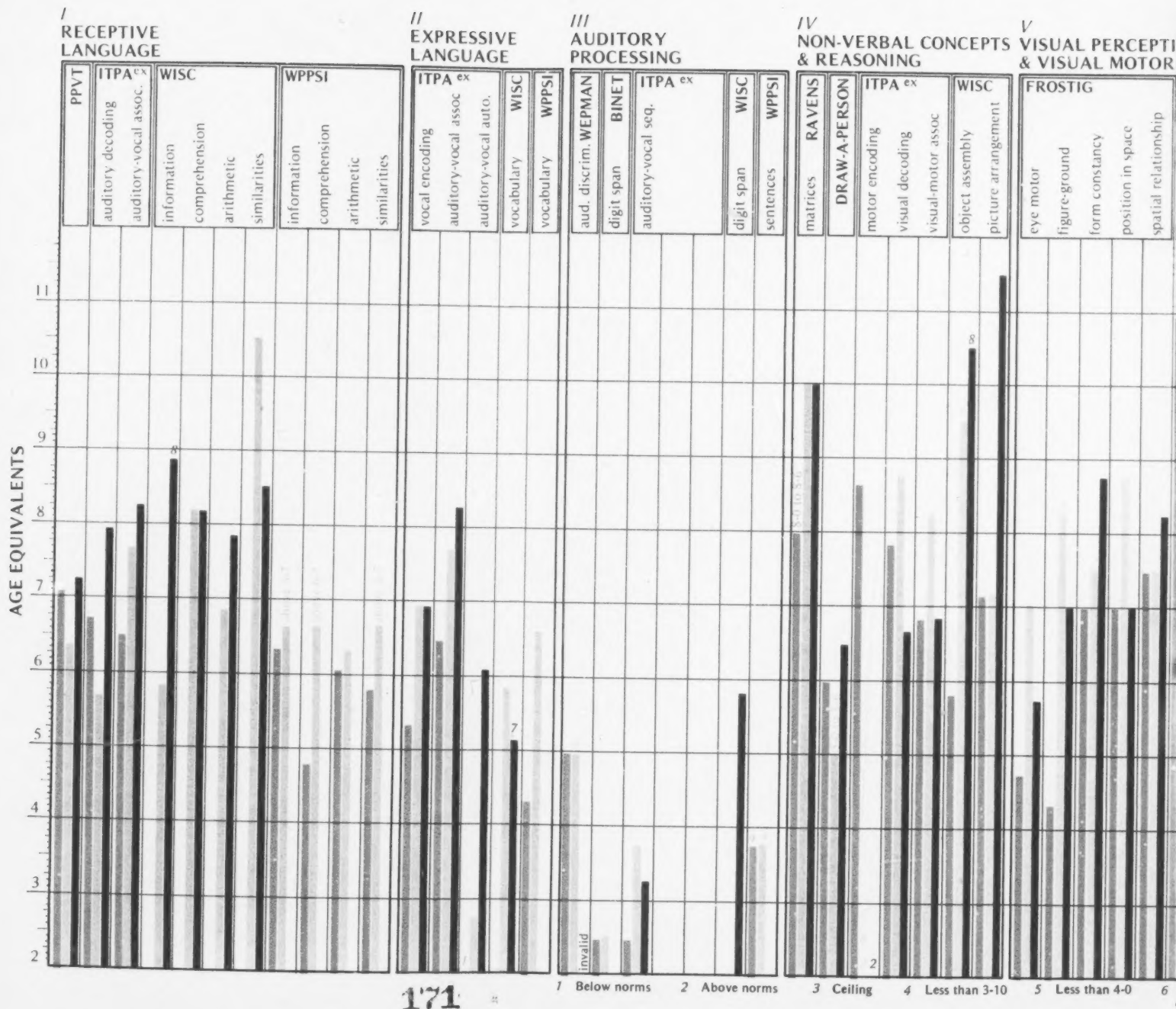
He had a much larger vocabulary when he left and was able to describe things without relying on the supplemental elaborate gesture system.

The general impression of Timmy's growth in the class for language-handicapped children was that he had greatly profited from the class, he had learned some compensatory mechanisms, and he had acquired a great many skills in academic areas. He had not been "cured" of his learning problems, but he was on his way to being educated.

Postscript

Recent communications from Timmy's current teacher in Florida indicate that he is struggling in a regular second grade of thirty children. He is still reading at a first grade level with the persistent problems he demonstrated while he was in the language disabilities class. He performs in math at a second grade level. It is difficult for him to attend to speech for long periods of time. His teacher can usually understand what he says. He does not ask questions about material presented nor will he ask to have material repeated if he does not understand what has been said.

Unfortunately no special education class is available in his new area. He obviously requires special programming to make material meaningful to him. It can only be hoped that a program will be found that will enable him to progress as he had done in the language disabilities class rather than to fall farther and farther behind.



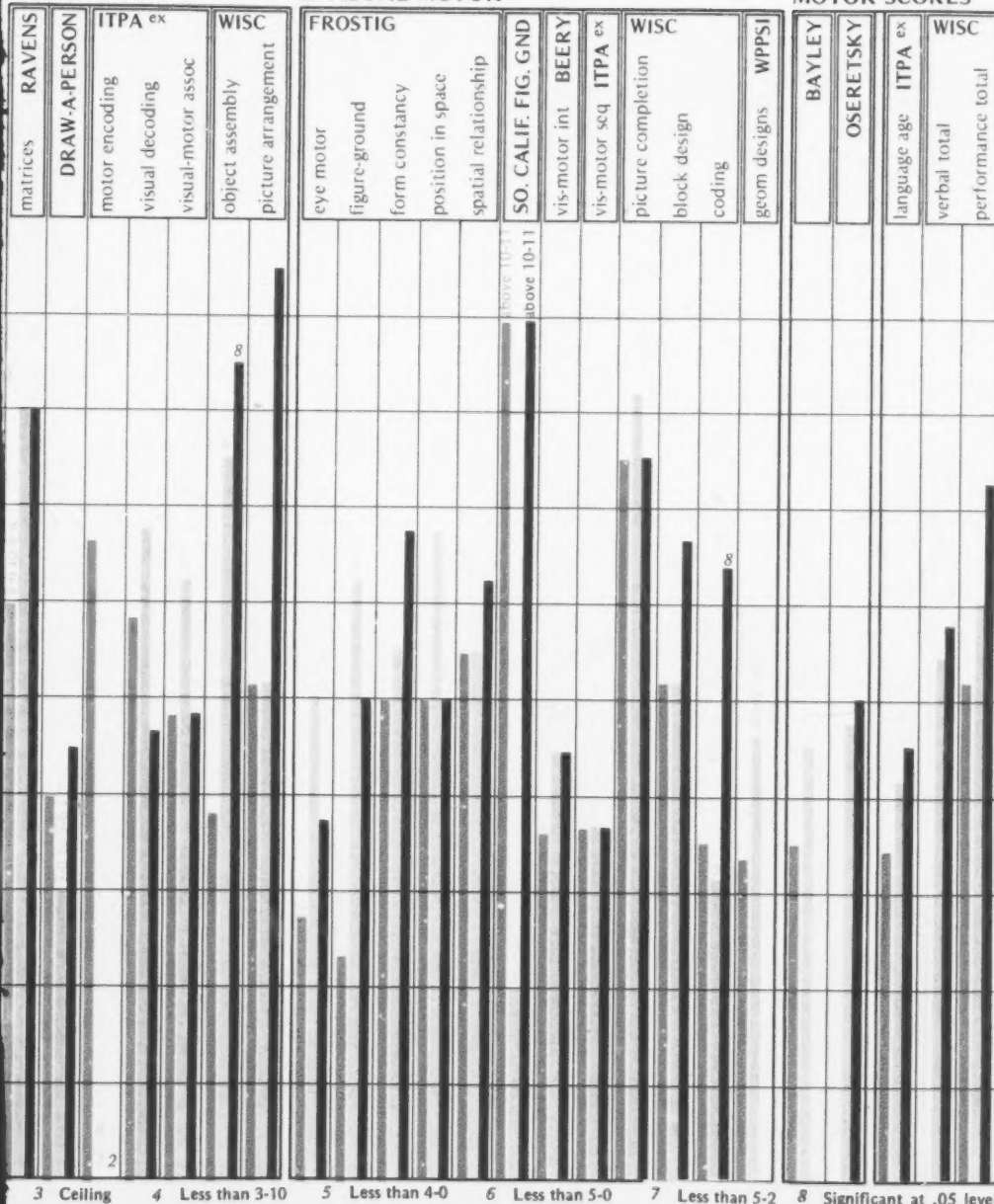
IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
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VI
GROSS
MOTOR SCORES

VII
TOTAL
SCORES

VIII
ADDITIONAL
MEASURES



ML³R (Templin)

Mean length of the five longest responses of 50

7 words
9.2 words

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
8-1	56%	22%	20%	2%
8-1	11%	11%	19%	56%
8-1	7%	16%	5%	70%

Word Recognition Scores

	pre-primer	primer	high 1st	low 2nd
8-1	48%	28%	20%	8%
8-1	80%	52%	32%	28%

Northwestern Syntax Screening Test

Receptive score: 30 (below 10th percentile)
Expressive score: 11

Timmy

Chapter 7

Results

Long-term results for the students in the Title VI-A project can only be conjectured. One- and two-year outcomes can be stated in objective and subjective terms. Findings for each student (except Timmy whose progress was covered in the preceding chapter) are summarized in this chapter.

Some of the most significant changes in the children were not quantifiable. They involved facial expression, posture, self-direction, self-control, sense of well-being, social interaction, communicative intent, volubility, ability to sustain attention, cooperation, increasing happiness, and a developing sense of humor. Video tapes made of the class at five intervals documented the emerging personalities. Sometimes a child's former teacher or therapist could not believe it was the same child she was seeing a year later.



The psychologist prepared sociograms of the class in the middle and at the end of the first year. "Who would you like to sit next to at lunch?" "Who would you like on the other side?" "Who would you like to play with after school?" and "Who else?" were the questions used to elicit first and second choices in two situations. The sociograms showed surprisingly even acceptance of each class member by all the others. After four months, no one was an isolate.

Although the test data do not describe the actual effect of the class on the students, they do provide some interesting information and show some trends. Some of the data shown on the accompanying graphs for each child were analyzed for statistical significance. Included are results of the Peabody Picture Vocabulary Test (PPVT), Illinois Test of Psycholinguistic Abilities (ITPA), Weschler Intelligence Scale for

Children (WISC), Frostig Developmental Test of Visual Perception (Frostig), and Southern California Figure-Ground Visual Perception Test (S. Cal.). Items marked with an asterisk(*) on the graphs are those that showed improvement significant at the .05 level of confidence. Not all data could be analyzed statistically because some measures were made only once. Some tests were given even though they were standardized for younger children, and those results are also shown.

Some strong trends among the students emerge from the psychologist's reports and the statistical data:

1. There was a tendency for the language class students not to have clearly developed laterality. Mixed dominance in hand use was observed in five of the ten children described.
2. Ability to make rapid tongue movements (diadochokinetic rate) was noted to be slow (below norms) in all of the children. (See chart that follows.)
3. Following the language class experience, some of the students tended to show dramatic improvements in certain test scores and almost as dramatic drops in some other scores. The staff speculated that these changes might be due to the interaction of compensatory systems: when auditory processing skills improve, for example, visual skills no longer need be preeminent.
4. Some test scores remained essentially constant. Few changes in scores on auditory memory were noted, even though many students appeared to improve in their ability to remember meaningful auditory information. There were also few changes in actual scores on the Beery Developmental Test of Visual-Motor Integration although the quality of responses had improved considerably in many cases.

Record of Diadochokinetic Rates (Speed of Tongue Movement)
of Students at the Beginning and End of Their Tenure in the
Language Class (Norms shown in parentheses are those of Irwin
and Becklund.¹)

Student	Repetitions of "puh"		Repetitions of "tuh"	
	Beginning	End	Beginning	End
Jan	age 7-11 2.0 per sec. (4.38)	age 8-8 3.0 per sec. (4.38)	age 7-11 1.6 per sec. (4.33)	age 8-8 3.0 per sec. (4.33)
Melanie	age 6-0 2.0 per sec. (3.67)	age 7-5 4.8 per sec. (4.38)	age 6-0 2.0 per sec. (3.51)	age 7-5 2.8 per sec. (4.33)
Phil	age 7-3 1.7 per sec. (4.34)	age 8-0 3.0 per sec. (4.34)	age 7-3 .7 per sec. (4.14)	age 8-0 2.0 per sec. (4.14)
Skip	age 7-8 2.0 per sec. (4.34)	age 9-4 5.0 per sec. (4.56)	age 7-8 2.0 per sec. (4.14)	age 9-4 4.0 per sec. (4.49)
Wilbert	age 5-9 2.0 per sec. (3.49)	age 7-5 2.6 per sec. (4.34)	age 5-9 2.0 per sec. (3.33)	age 7-5 3.0 per sec. (4.14)
Danny	age 7-3 2.6 per sec. (4.34)	age 8-2 3.2 per sec. (4.34)	age 7-3 2.6 per sec. (4.14)	age 8-2 3.1 per sec. (4.14)
Timmy	age 7-1 2.0 per sec. (4.34)	age 8-10 4.0 per sec. (4.34)	age 7-1 2.0 per sec. (4.14)	age 8-10 4.0 per sec. (4.14)
Norton	age 8-0 2.6 per sec. (4.34)	age 8-11 6.0 per sec. (4.56)	age 8-0 2.5 per sec. (4.14)	age 8-11 5.0 per sec. (4.49)
Patsy	age 7-1 2.2 per sec. (4.38)	age 8-0 2.6 per sec. (4.38)	age 7-1 1.8 per sec. (4.33)	age 8-0 3.0 per sec. (4.33)
Robbie	age 8-0 3.6 per sec. (4.34)	age 9-0 3.1 per sec. (4.56)	age 8-0 3.6 per sec. (4.14)	age 9-0 3.0 per sec. (4.49)

Repetitions of "kuh"		Rep. of "puh-tuh-kuh"		Handedness	
Beginning	End	Beginning	End	Beginning	End
		age 7-11 could not do	age 8-8 could not do	primarily right	right
	age 7-5 2.8 per sec. (3.88)	age 6-0 could not do	age 7-5 could not do	right	right
		age 7-3 could not do	age 8-0 could not do	mixed	mixed
	age 9-4 5.2 per sec. (4.19)	age 7-8 .5 per sec.	age 9-4 1.25 per sec.	not clearly established	left
	age 7-5 2.5 per sec. (4.02)	age 5-9 .7 per sec.	age 7-5 .65 per sec.	right	right
		age 7-3 could not do	age 8-2 could not do	mixed	right
	age 8-10 3.4 per sec. (4.02)	age 7-1 could not do	age 8-10 1.0 per sec.	right	right
	age 8-11 3.5 per sec. (4.19)	age 8-0 could not do	age 8-11 1.0 per sec.	mixed	right
		age 7-1 could not do	age 8-0 .35 per sec.	right	right
		age 8-0 .85 per sec.	age 9-0 .93 per sec.	mixed	mixed (predom. left)

JAN

September, 1968 Jan: *Phil good boy day?*
age 7-11

January, 1969 Jan: (referring to lunch) *You know you*
age 8-3 *will have? Me don't know.*

May, 1969 Jan: *I can build a house out of brick.*
age 8-7

Jan had been enrolled in a diagnostic class in a Montgomery County Public School for moderately retarded children. She was referred to the Title VI-A project because the school personnel, including the speech therapist who worked with her, felt that behind the surface of Jan's behavior problems and unintelligibility, a greater potential was waiting to be released. The psychologist's summary of September, 1968, stated:

Jan is a seven-year, eleven-month-old girl with a history of seizures and delayed motor and language development. An EEG at age five revealed moderate abnormalities. She was recently operated on for a spinal malignancy which at present appears arrested though prognosis is guarded. (She is receiving intensive chemotherapy for this condition.) Previous testing indicated potential in the borderline retarded range. School personnel who observed Jan in the past felt that emotional overlay also contributed to poor socialization and low level of performance. Certainly Jan's hyperactivity, impulsiveness, and distractibility were a handicap to obtaining valid results during this evaluation.

Current audiological assessment indicates normal hearing for the acquisition of speech and language. Speech evaluation revealed a severe articulation problem and unintelligible speech for connected language. Oral mechanism is essentially normal except for restricted tongue mobility and slow diadochokinetic rate. Auditory memory is consistently below the three-year-old level. Receptive language is at approximately the four-and-one-half-year-old level for both single words and connected language. Expressive language is at approximately the

four-year-old level for connected speech but considerably better when only one-word responses are required. Jan is somewhat better in visual areas. Visual discrimination scores range from the five- to seven-year-old levels, while visual motor scores cluster around the five-year-old level. Visual memory, however, is considerably poorer with functioning at about the three-year-old level. Jan is right dominant. She has not passed many of the motor developmental milestones expected of a youngster who is nearly eight. Both fine and gross motor coordination are approximately three years below chronological age.

Intellectual assessment with nonlanguage tests yielded scores in the mildly retarded range. Scores would no doubt have been somewhat lower had language instruments been included. Jan appears to be most handicapped in the auditory channel and though the visual and motor modalities are also impaired, these areas are not as severely damaged. Jan's obstreperous behavior and poor attention will no doubt continue to interfere with learning. This is in addition to poor health and limited potential which makes her prognosis for improvement somewhat guarded.

Despite these limitations, Jan entered the language class at the beginning of the project, September, 1968, and remained in the class until June, 1969. Behavior management required major, consistent effort. The teacher-therapist and psychologist had a number of conferences with Jan's parents. The end-of-year psychological report of Jan at age 8-8 concluded:

Following nine months of attendance in a demonstration/experimental class for children with language disabilities, Jan was referred for reevaluation in order to assess progress. Overall, Jan's rate of improvement has been very slow. There has been no change in test performance in many areas, while others are somewhat better, but still remain far below chronological age. The slow rate of growth evidenced this year is consistent with the scores obtained on recent intelligence tests which indicate potential in the mildly retarded range. There is no longer a significant difference between language and nonlanguage

intelligence scores which suggests that Jan's language handicaps are now related to a generalized learning problem rather than a specific disability in this one area.

Audiological evaluation again revealed adequate hearing acuity for the acquisition of speech and language. Articulatory ability is slightly improved though numerous substitutions, distortions, and omissions are still present. Decreased rate of speech has contributed to greater intelligibility though conversational speech tends to deteriorate after a short period of time. Tongue mobility continues to be poor and diadochokinetic rate is slow though somewhat improved. Auditory memory is slightly better, but remains approximately five years below age level. Auditory discrimination ability is also very poor. Receptive language testing revealed little change with scores remaining four- to four-and-one-half years below age level. Scores on tasks measuring reception, association, and expression are all improved but remain highly inconsistent. An analysis of expressive language revealed that Jan is able to produce longer, more grammatically correct sentences in a structured situation; but this does not consistently carry over to conversational speech. Scores on expressive language tasks remained static and are all about four years below age level.

Performance of visual discrimination tasks is about two years below age level, but those involving figure-ground are markedly poorer. No change is seen in visual motor ability which remains four years below age level. Visual memory skills are quite a bit better though still two years below age level. Gross motor ability shows almost no change with performance ranging from the three- to six-year-old levels. Jan continues to perform fine motor tasks well below age level. Dominance remains primarily right. Reading and arithmetic skills are at the first grade level.

The one area of marked growth this past year is in behavior and social adjustment. There has been a marked decrease in negativism, defensiveness, and obstreperous behavior. As a result, Jan is now in a better position to

make use of the potential she does have and should be able to profit from academic instruction in a structured setting.

Recommendations:

Because Jan has made minimal progress this year and current testing suggests a generalized learning problem rather than a specific language disability, it is felt that her continuation in the language disability class would not be beneficial. A class for children who are mildly retarded appears more appropriate at this time. Therefore, Jan is being referred back to the special education department for placement.

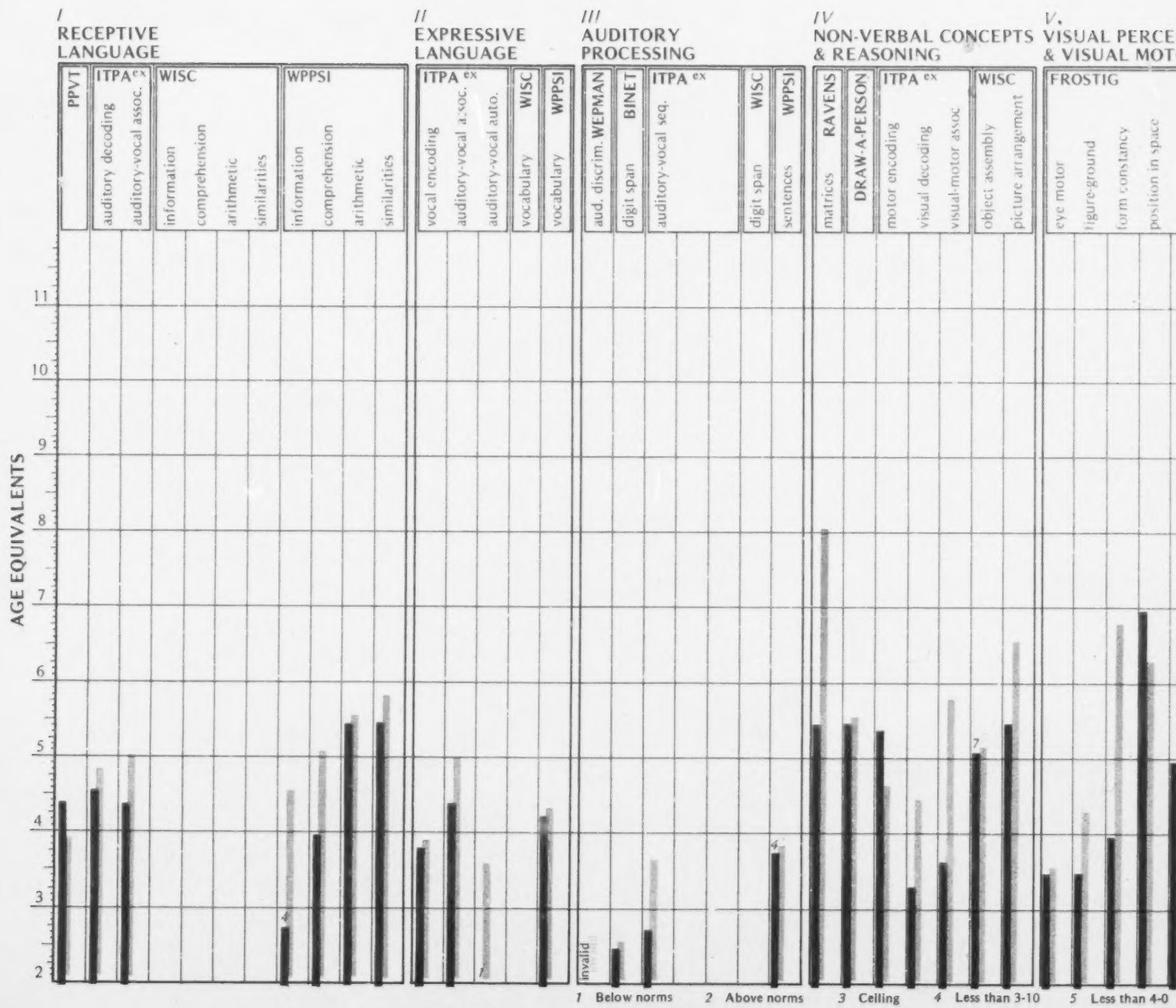
Jan will continue to need a rather structured setting both to promote academic progress and help her maintain her behavioral controls. A visual approach to reading should be continued. She will need to manipulate objects to perform mathematical operations for some time before she can rely on using number symbols alone. A regular program of individual speech therapy should be continued. Therapy should concentrate on the following areas:

1. Increasing Jan's vocabulary of everyday words and appropriate use of them.
2. Increasing auditory memory and attention to auditory information.
3. Maintaining the language concepts she has.
4. Continuous reinforcement of grammatical structures she has learned, such as use of present progressive tense; negatives; and pronoun use in nominative, objective, and possessive cases.

Jan is reluctant to attempt a new activity in therapy. If she is relatively sure of some success, she is more willing. Her attitude is quite often negative. When allowed to sit quietly until she tells the teacher she is ready to work, the negativism decreases; she apparently requires some time to organize herself for a task.

Jan was enrolled for public school speech therapy during the summer of 1969. The therapy center she attended happened to be in the Meadow Hall Elementary School where the Title VI-A summer class was underway. Frequently, Jan would stop by to say hello to her former teacher-therapist. Her friendliness, communicative intent, and poise during these visits made it hard to remember the pouting, screeching, antagonistic child Jan had been less than a year earlier. Jan entered a class for mildly retarded (educable) children the following year. She exhibited many of her former behavior problems and made little progress. In March 1970, she was placed on home instruction because of deteriorating health. In September, just before her ninth birthday, Jan died of cancer.

In reviewing the benefits of language class placement for Jan, the most obvious changes were her improved behavior and ability to give attention. She could be observed at times controlling her own behavior by literally talking to herself, having internalized control words used by the teacher-therapist. Since attention was thus more available, Jan could and did learn some math and reading skills. She was also better accepted by the other children and had improved relationships with everyone. Her behavior changes while in the class indicated that she liked herself better, too.



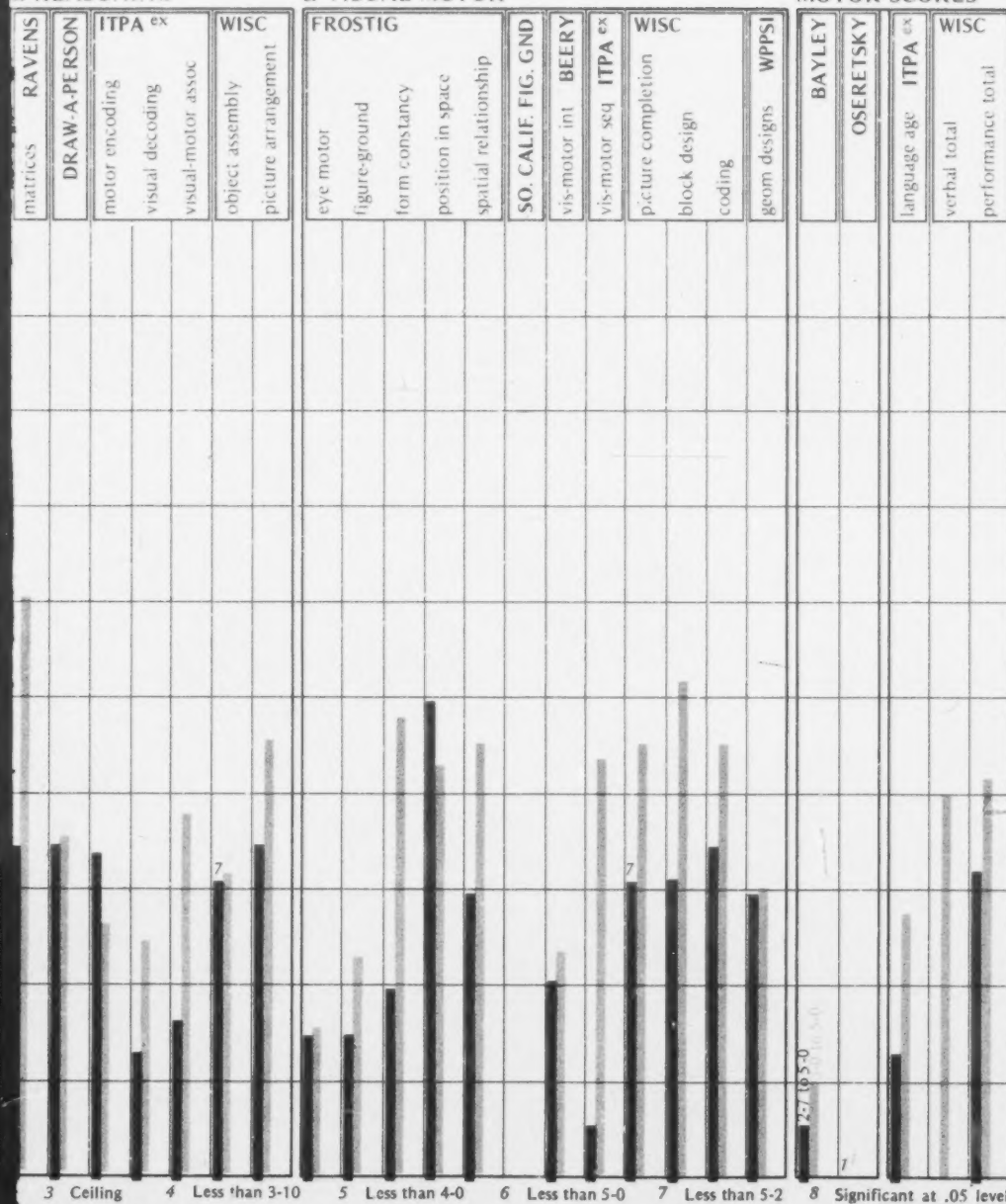
IV
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V
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& VISUAL MOTOR

VI
GROSS MOTOR
SCORES

VII
TOTAL
SCORES

VIII
ADDITIONAL
MEASURES



MELANIE

December, 1968 age 6-0	Psychologist: <i>What is a castle?</i> Melanie: <i>King have a hat.</i>
June, 1969 age 6-6	Teacher-therapist: <i>What does a fireman do?</i> Melanie: <i>Take fire truck somebody house. Burn them house down. Put water out.</i>
April, 1970 age 7-4	Melanie: <i>I'm going to take all the Easter eggs and put them in my basket.</i>
March, 1971 age 8-3	Melanie: <i>I have news.</i> Teacher-therapist: <i>OK — what is your news?</i> Melanie: <i>Well, it's from last year.</i> Teacher-therapist: <i>If it's from last year, it's not news!</i> Melanie: <i>But last year I didn't know the words!</i>

Melanie completed kindergarten and started first grade at her neighborhood school. The first grade was a small class of children considered not yet ready for academics. Her teacher quickly detected Melanie's problems to be of a different order.

A school psychologist who evaluated Melanie in August, 1968, wrote in his summary:

Most of Melanie's problems appear to center around her inadequate command of expressive language. She is unable to communicate her thoughts clearly to the listener and as such receives inadequate feedback. Since the self-concept is formed by observing the reactions of others to oneself, she gets partial or distorted pictures which in turn occasion the confused self-image.

Besides the area of self-image, she also gets inadequate feedback in references to her thought processes. Since the average person evaluates only what she presents, many

thought processes go unresponded to; and she never knows whether they are right or wrong. Accordingly, her learning process can be delayed.

Melanie was referred to the Title VI-A project and entered the class in November, 1968, nearly three months after the class had begun. The psychological evaluation summary of Melanie's status as of December, 1968, at age 6-0 follows:

Melanie is a six-year-old girl whose development was normal except for slow acquisition of speech. There is some evidence suggesting that language problems may run in the family. Melanie has drooled excessively since birth and to some extent the problem is still present. She also has urinary problems resulting from a congenitally small bladder. Though a cooperative, well motivated child, Melanie is handicapped by distractibility.

Current audiological evaluation indicated hearing is normal for the acquisition of speech and language. Speech evaluation revealed a mild to moderate articulation problem, but the oral mechanism is essentially normal except for poor tongue control. Diadochokinetic rate is slow. Auditory memory is poor with performance consistently three to four years below chronological age on all tasks. Auditory discrimination ability is also very poor, especially when background noise is present. Receptive language as measured by comprehension of single words was a year below chronological age; for most tasks involving reception, association, and expression, however, her comprehension was less than a year below her chronological age. An analysis of expressive language revealed syntactical problems; sentences were delivered in telegraphic style with many grammatical errors. Melanie also has difficulty expressing a sequence of events, making generalizations, and forming linguistic concepts. Scores on expressive language tasks revealed age level performance when a one-word response was required but performance eight months to two years below chronological age when connected language was required.

An assessment of visual perception yielded highly inconsistent scores. On visual memory, motor and discrimination tasks, scores ranged from two years above chronological age to two and one-half years below. Though some perceptual problems are in evidence, the deficit in this area is relatively less disabling because not all visual areas are depressed while all auditory areas are. Motor tests indicate no clearly established pattern of dominance. Gross motor ability is at approximately the five-year-old level though some six- and seven-year-old tasks were adequately performed. Fine motor coordination is also generally below age level. Both reading and arithmetic skills are at a low first grade level.

Intellectual assessment with nonlanguage tests yielded scores in the average range of ability. Scores on language intelligence tests were in the slow learner range, however. It appears that Melanie has adequate potential and motivation for learning but is seriously handicapped by impairments in language areas. Her distractibility also works to her detriment. While some impairment is seen in the motor and visual channels, it is not as significantly disabling as problems noted in the auditory channel.

Excerpts from the psychologist's report at the end of the first year of the class, when Melanie was age 6-6, revealed:

Melanie appears less tense than previously and apparently feels freer in her relationship to both teachers and children. The drooling which observations indicated were manifested when she was feeling anxious is no longer in evidence. Melanie has quite aggressively carved out a place for herself in the classroom (no small task since she arrived three months after the class began) and is now the undisputed leader of the group and undoubtedly the most sought after member of the class . . .

Melanie's more relaxed attitude was reflected in her behavior during this evaluation. She felt free to give up when things were hard for her, to complain a bit, and to show genuine fatigue which had previously been

steadfastly denied. The result was that she did not always work up to the level of her ability; but she was more spontaneous, outgoing, and natural. In short, Melanie seemed more like an average six year old. . . .

Melanie has progressed well with improvement evident in most areas, especially academic achievement, visual skills, and expressive language. The various receptive language abilities have changed very little, however, and remain poor in comparison with her general potential for learning. . . . Though slightly improved, auditory memory is an area of severe deficit with performance about three years below chronological age. Auditory discrimination ability remains very poor. Receptive language is below age level for both sentences and single words though tasks requiring reception, association, and expression as measured by the WISC yielded scores in the average range. An analysis of expressive language indicates better ability to sequence words in a sentence and to use longer sentences. Syntactical and grammatical problems are still apparent, though much improved, however. There is good growth in all visual skills. . . . Gross motor tasks are generally performed about a year below age level as are fine motor skills. Both reading and arithmetic are first grade level. . . .

Reevaluation near the end of the second year of the Title VI-A class in May, 1970, when Melanie was 7-5, was summarized by the psychologist as follows:

Results of intelligence testing were essentially the same as a year ago. Performance and full-scale IQ scores were in the average range, and the verbal score was low average. Problems in expressive language and auditory memory were reflected in some scores. . . .

Sentence structure has improved a great deal. Conversational speech is much more fluid and in greater quantity. It also reflects improvement in organization of ideas, grammar, and sequencing of syllables in words and words into sentences. Word finding is less of a problem. Problems in spontaneous speech are reflected in test scores on the

ITPA and Northwestern Syntax Screening Test, but growth is shown over last year. Receptive language has also shown an improvement and is now testing within normal limits.

Visual perception and visual-motor skills have not shown the gains seen in auditory-vocal skills. Subtests on the ITPA which tap visual skills are at the same level or have decreased. Eye-motor coordination is an area of particular difficulty. Fine and gross motor tasks are one to two years below age level.

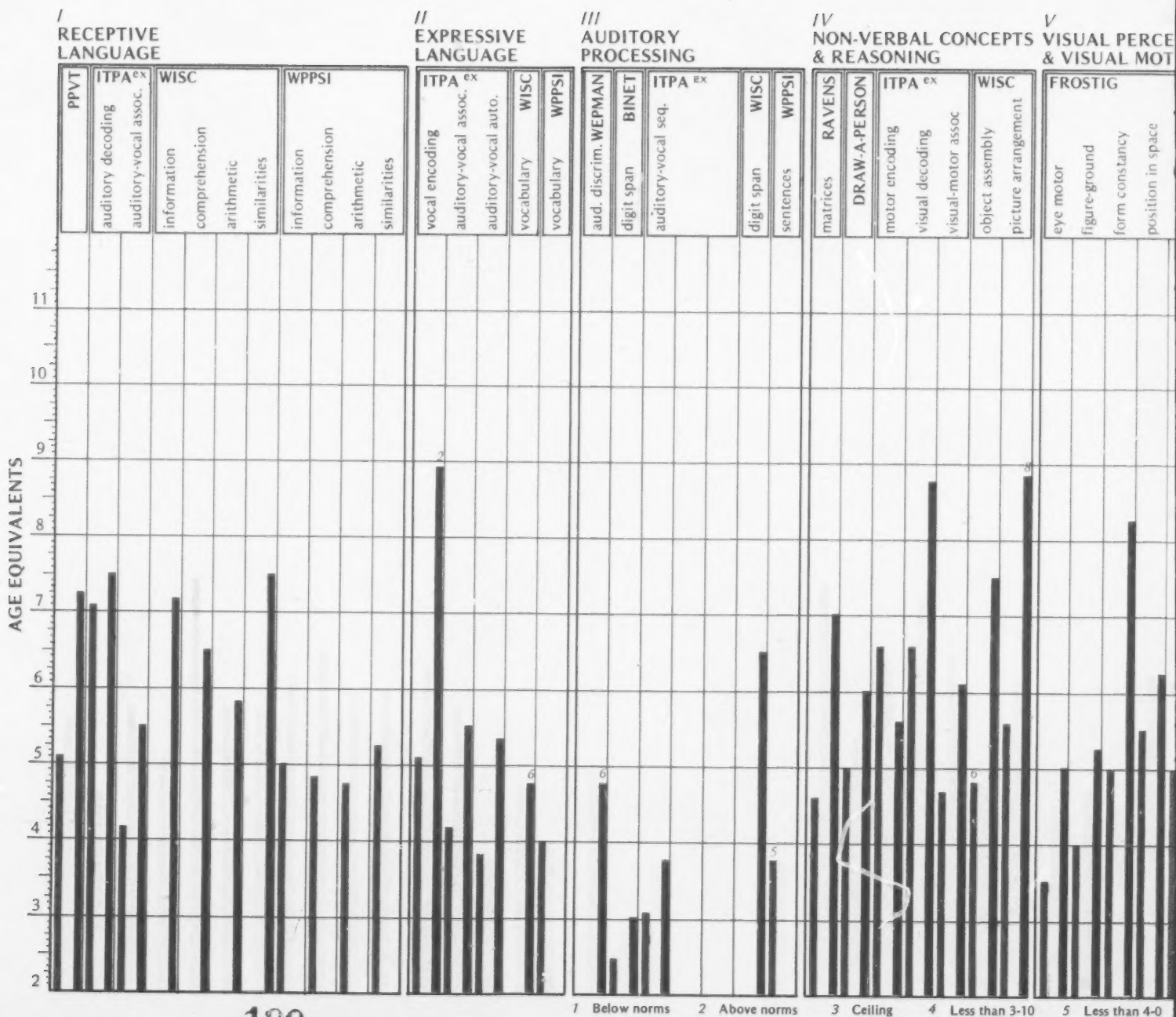
Melanie made adequate progress in a second level math class and is learning spelling as an incidental skill. She is still at first grade level in reading but has made more progress since changing reading series (from Merrill to Ginn) at mid-year.

She has made good progress in the class this year, and it is felt that the class continues to be the proper school placement for her. Math instruction in a regular class worked well. Integration into regular class settings should continue next year as feasible.

Melanie continued in the special language class in 1970-71 when the program was no longer federally funded but had been adopted by the Department of Special Education of the school system. She was integrated into regular classrooms for math and for reading. Her progress was rapid and solid. Her improvement has been so consistent that Melanie will return to a regular third grade class in her neighborhood school next year. She will probably need speech therapy from the school therapist. Her progress will be monitored by a staff member familiar with her history.

To summarize, a major difference for Melanie, attributable to the development of language, was the genuine personality that emerged. She had often worn a rather fixed, vacuous smile — almost a mask — when she was not sure of what was being said or how she was to respond. This expression had no real content except uncertainty. Her behavior was rigid and unspontaneous.

Once some of the puzzle of language began to be clear to her, she relaxed and developed spontaneity and a sense of humor. She made impressive gains in learning to read and to perform mathematical operations after she developed some understanding of oral language.



IV NON-VERBAL CONCEPTS & REASONING

RAVENS	DRAW-A-PERSON	ITPA ^{ex}	WISC
matrices		motor encoding	visual-motor assoc
		visual decoding	object assembly
			picture arrangement

V VISUAL PERCEPTION & VISUAL MOTOR

FROSTIG	SO. CALIF. FIG. GND	BEERY	ITPA ^{ex}	WISC	WPPSI
eye motor		vis-motor int	vis-motor seq	picture completion	geom designs
figure-ground				block design	
form constancy				coding	
position in space					
spatial relationship					

VI GROSS MOTOR SCORES

BAYLEY	OSERETSKY	ITPA ^{ex}	WISC
		language age	verbal total
			performance total

VIII ADDITIONAL MEASURES

ML⁵R (Templin)

Mean length of the five longest responses of 50

6 to 7 words

18.5 words (above norm)

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
6-1	16%	26%	30%	28%
6-9	7%	18%	7%	68%
7-4	6%	5%	7%	82%

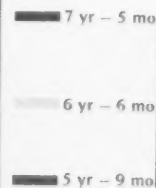
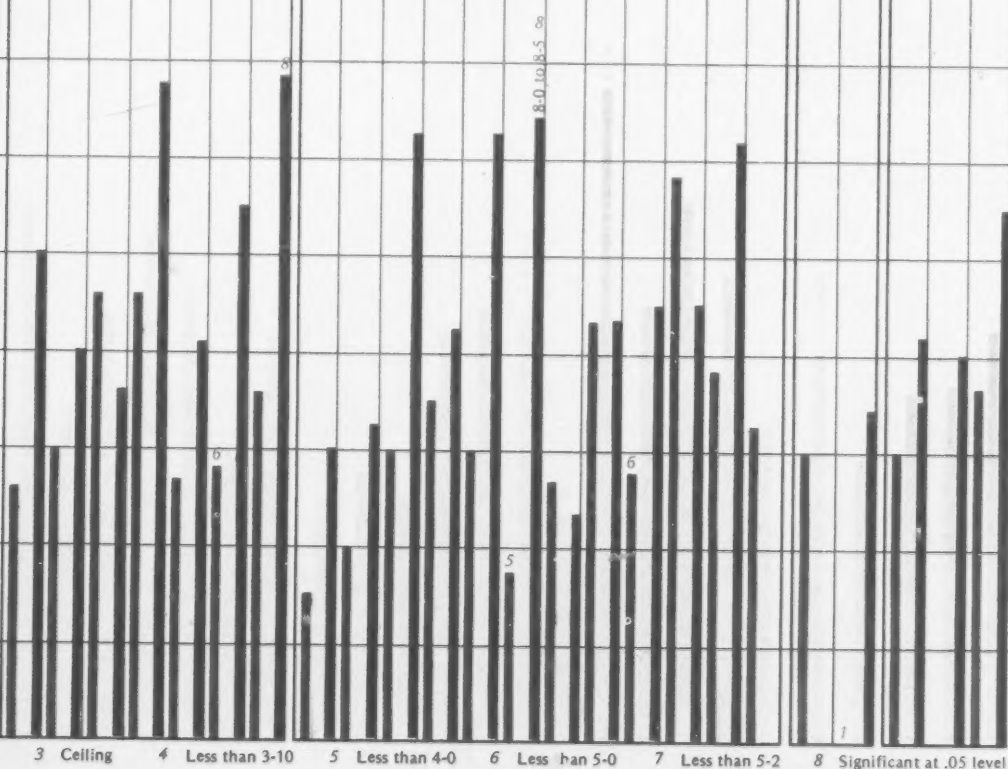
Word Recognition Scores

	pre-primer	primer	high 1st	low 2nd
64%	64%	44%	16%	8%
100%	100%	94%	64%	44%

Northwestern Syntax Screening Test

Receptive score: 30 (less than 10th percentile)

Expressive score: 10 (less than 10th percentile)



Age at times of testing
 Not all tests given at each interval

Melanie

PHIL

- September, 1968
age 7-3 Phil usually gestured or used one-word utterances. However, once he produced the sentence, "Pepper make you sneeze?"
- June, 1969
age 8-0 Phil was more often using two-word combinations ("blue shirt," "short sleeves") with an occasional complete question ("Are you ready?") or statement ("Mom and Dad go store.")
- December, 1969
age 8-6 Phil: *Have hat at school.*

Phil had been in a class for children with specific learning disabilities. His developmental history was inconsistent. Even though he gave many indications of retardation, his teachers had from time to time reported observing him function on a higher level. His scores on the Peabody Picture Vocabulary Test were consistently within the average range. Placement in the language class was suggested since Phil had almost no functional expressive language and did exhibit some glimmers of higher activity.

The psychologist summarized her findings on Phil at the beginning of the project as follows:

Phil is a seven-year, three-month-old boy with a history of traumatic birth and prenatal period, disturbed family relations, and atypical early development including the development and subsequent disappearance of some speech. Neurological evaluation at age five and one-half produced evidence of organic damage. He has had difficulty adjusting to a classroom situation in the past due to hyperactivity but is manageable since started on medication a year ago.

Audiological findings indicate hearing acuity within normal limits for the acquisition of language. Phil has a severe articulation problem causing his speech to be

unintelligible for connected language, though single words can be occasionally understood. No gross defects in oral mechanism were noted. He did appear to have a problem remembering the motor patterns for speech. Auditory memory span is consistently below the three-year-old level. Receptive language for single words is nearly at chronological age but is below the three-year-old level for connected language. Expressive language is between the three- and four-year level, slightly better for single words than it is for connected language. Visual discrimination ability is between the three- and four-year level, while visual motor ability is below the three-year-old level. Visual memory is slightly better, however, with scores clustering around the five-year-old level. Gross motor ability is below chronological age but inconsistent. Fine motor ability is consistently poor. Phil has mixed dominance.

Present testing indicates that Phil's overall level of functioning is in the moderately retarded range of ability, probably as a result of organicity, with some emotional overlay. Though Phil is performing at least two years below chronological age in all areas, the disability in the language area is most severe with functioning approximately five years below chronological age. In view of the fact that Phil is handicapped in all modalities, the prognosis for improvement is extremely guarded.

The end-of-year report, when Phil was 8-0, concluded:

Following nine months of attendance in a demonstration/experimental class for children with language disabilities, Phil was referred for reevaluation in order to assess progress. An analysis of the test results indicates that over-all improvement has been minimal. Small gains have been made in some areas, especially expressive language skills, receptive language, and some visual skills; but Phil still remains far below chronological age in these areas, too. The slow rate of progress this year is consistent with the results of recent intelligence tests which indicated potential in the moderately retarded range. There is now

little significant difference between performance on language and nonlanguage tasks, suggesting that Phil's language lag is related to generalized learning problems rather than a specific language disability.

Hearing acuity is within normal limits for the acquisition of language. Articulation has improved very little. Speech is moderately intelligible if the topic is known. Tongue mobility is better, but still poor. Diadochokinetic rate remains slow. Auditory memory is still severely restricted, about five years below chronological age. Auditory discrimination ability is also extremely poor. Gains have been made in receptive ability both for comprehension of single words and connected language. He is still below age level in both, however. Slight improvement is seen on tasks requiring reception, association, and expression though overall performance remains three and one-half years below chronological age. Expression now consists of two- and three-word utterances compared to previous use of single words. Scores measuring verbalization of ideas are at about the four-year level.

Little change is seen in performance on visual discrimination tasks with all scores clustering between the three- and four-year level. Visual motor ability shows considerable improvement though performance is approximately four years below age level. Visual memory scores are inconsistent, but this appears to be an area of strength. Phil continues to have mixed dominance. No change is seen in gross motor ability with scores ranging from the five-and-one-half-year level to below the four-year-old level. Fine motor tasks continue to be poorly performed. Phil can correctly identify a few practical words. Number concepts have not developed.

The most obvious area of change this year has been in behavior and social adjustment. Phil has far better inner controls, is no longer hyperactive, has increased attention span, and is able to work for longer periods of time with good motivation. Behavior has become more mature and socially appropriate for his age.

Recommendations:

Because of slow rate of progress and inability to profit from the academic program offered in the language disability class as much as the other children did, it is felt that this program is no longer appropriate for Phil. Therefore, it is recommended that he be referred again to the special education department for placement in a class for children with very limited potential for academic learning. Phil will progress best in a structured classroom setting with a maximum amount of language stimulation. He needs a continuing program of individual speech and language therapy as well. Therapy should focus on auditory attending and auditory memory. He needs work to improve ability to recall words. Phil's language program should be geared toward meeting his personal needs and developing independence and self-help skills. He should be helped in learning to communicate his needs and understanding simple communications such as safety information and following directions.

Phil is reluctant to try new things in therapy. However, he should be made to perform tasks in which some degree of success is assured. Phil will refuse to do a task and will begin to rub his eyes when he is fearful of failure. He should be told to stop this, be assured that he can do the task, and be helped to complete the task.

Phil was placed in a class for moderately retarded children the following year. Just before Christmas the teacher-therapist went to visit Phil in his new environment. Her notes of December 18, 1969, include the following observations:

The observation time was about one and one-half hours. During this period, Phil was observed doing independent paper work, participating in a gross motor program, doing a reading readiness activity in a group, and doing a worksheet from the Frostig program in a group situation.

Phil's general behavior was quite subdued. He attended well to all tasks, and little distractibility was noted.

Tremors were noted when he was using a pencil; the tremor was also present when he worked at the blackboard with chalk. He responded quickly and correctly to orally given directions without visual clues. He knew the "program" for the gross motor activities and immediately gave the oral and motor responses called for when oral directions were given; no gestures were required at any time for Phil to understand directions.

Receptive language appeared to be one of Phil's stronger areas. He demonstrated no problems comprehending what was said to him. He attended to speech and indicated that he understood an announcement over the public address system by repeating the name of the child mentioned and going to the door to look down the hall to watch the child come. He appeared to have some difficulty understanding prepositional phrases, such as "at the top of."

Expressive language was characterized by a predominant use of two-word combinations. His verbalizations included many types of two-word combinations including transformational fragments. Dyspraxia was evidenced when Phil was counting and on other occasions. He relied on visual clues from the teacher; he appeared to look at the teacher's lips for the initial sound of the words he needed. He appeared to recall the motor pattern for articulation of the words with the phonetic placement clues. On several occasions, he pointed and gestured to indicate that he knew the appropriate response but could not recall the needed word. At other times, he needed a starter phrase to remember an entire response.

He repeated many of the things said in the room, but at no time did he repeat more than four syllables; it appeared that his auditory memory span was about four items. He repeated four-syllable statements more consistently than four-syllable items, and those verbalizations were more readily intelligible.

Some of his oral responses were in the patterns stressed during structured language classes last year, indicating

good carryover. Analysis of the sample of spontaneous speech heard in the class showed that approximately fifty per cent of his verbalization was single-word utterances, fifty per cent was two-word combinations, and one was a spontaneous construction. In June, 1969, when Phil was still in the language class, the distribution of utterances was single words, fifty-two per cent; two-word combinations, twenty-eight per cent; constructions, twelve per cent; and sentences, eight per cent. Because of the small samples involved in both cases, there does not appear to be a significant difference in his use of syntactic structures.

In academics the primary areas of concentration appeared to be matching color words, matching capital to small letters, writing numbers with a sample present, and matching sets to the appropriate number symbol.

The Ginn readiness program for reading and the Frostig program for visual-motor development were being used. He did not demonstrate any problems in matching. He followed the activity being done in the Ginn program and identified the correct responses. It was necessary for the teacher or aide to guide him in marking the response each time.

When he was in the language class, Phil had developed a small sight vocabulary consisting of safety and everyday words, which included *boys, girls, men, women, danger, poison, stop, walk, and don't walk*. Reassessment was not done on the day of observation, but it would be helpful if this could be done by the teacher.

Phil read the names of the others in the class. One instance of word-finding difficulty was noted when he was performing a reading task: he pointed to the correct child but could not recall her name. He could not read the days of the week.

Manuscript writing was used with Phil previous to this year, and cursive is presently used in his class. It is not possible to ascertain if he retained some of the words learned last

year when manuscript was used. He had learned to write his name inconsistently but was not writing it when observed. One sample of production of his name indicated he had reverted to writing it from right to left. This had been partially alleviated by color coding his paper for starting and stopping, that is, a green line at the left side of his paper to indicate the starting point and a red line to indicate termination point. Writing was difficult for him, and a hand tremor accompanied all writing. The tremor was consistent with his former performance. The quality of his writing efforts was poor. He put his head on the table and looked at his work from an angle.

No growth or regression had occurred as demonstrated on that day.

The Title VI-A psychologist also administered a partial retest battery in order to provide follow-up data. Her summary stated that "performance on nearly all measures is approximately at the same level or is below that demonstrated in previous testing. . . ."

It is apparent that experience in the language class brought about a better equalization of Phil's language and performance skills which had previously been very discrepant. He learned to attend to and comprehend verbal directions within the limits of his intellectual potential. Further progress has been limited. His present teacher reports that he talks more than most of the students in his class of eleven moderately retarded youngsters, frequently asks questions but usually does not wait for an answer, and often asks to have things repeated. She has difficulty understanding what he tries to tell her.

In summary, a major result of the special language training was that Phil's behavior, like Jan's, underwent a remarkable change. His attention span had been fleeting; it became reasonably long, long enough to participate in a half-hour's intensive therapy session. One video taped sequence shows Phil laboriously expressing three-word sentences while looking at a picture stimulus: "I eat cookies," "I have shoes." He touched his stomach to remind himself of the pronoun with which to start.

The time Phil required to produce these brief sentences was excruciatingly long, but the triumphant look on his face conveys to the viewer what a great accomplishment this was for him.

AGE EQUIVALENTS

I RECEPTIVE LANGUAGE

PPVT	ITPA ^{ex}	WISC	WPPSI
auditory decoding	auditory-vocal assoc.	information	information
		comprehension	comprehension
		arithmetic	arithmetic
		similarities	similarities

II EXPRESSIVE LANGUAGE

ITPA ^{ex}	WISC	WPPSI
vocal encoding		
auditory-vocal assoc.		
auditory-vocal auto.		
vocabulary		
vocabulary		

III AUDITORY PROCESSING

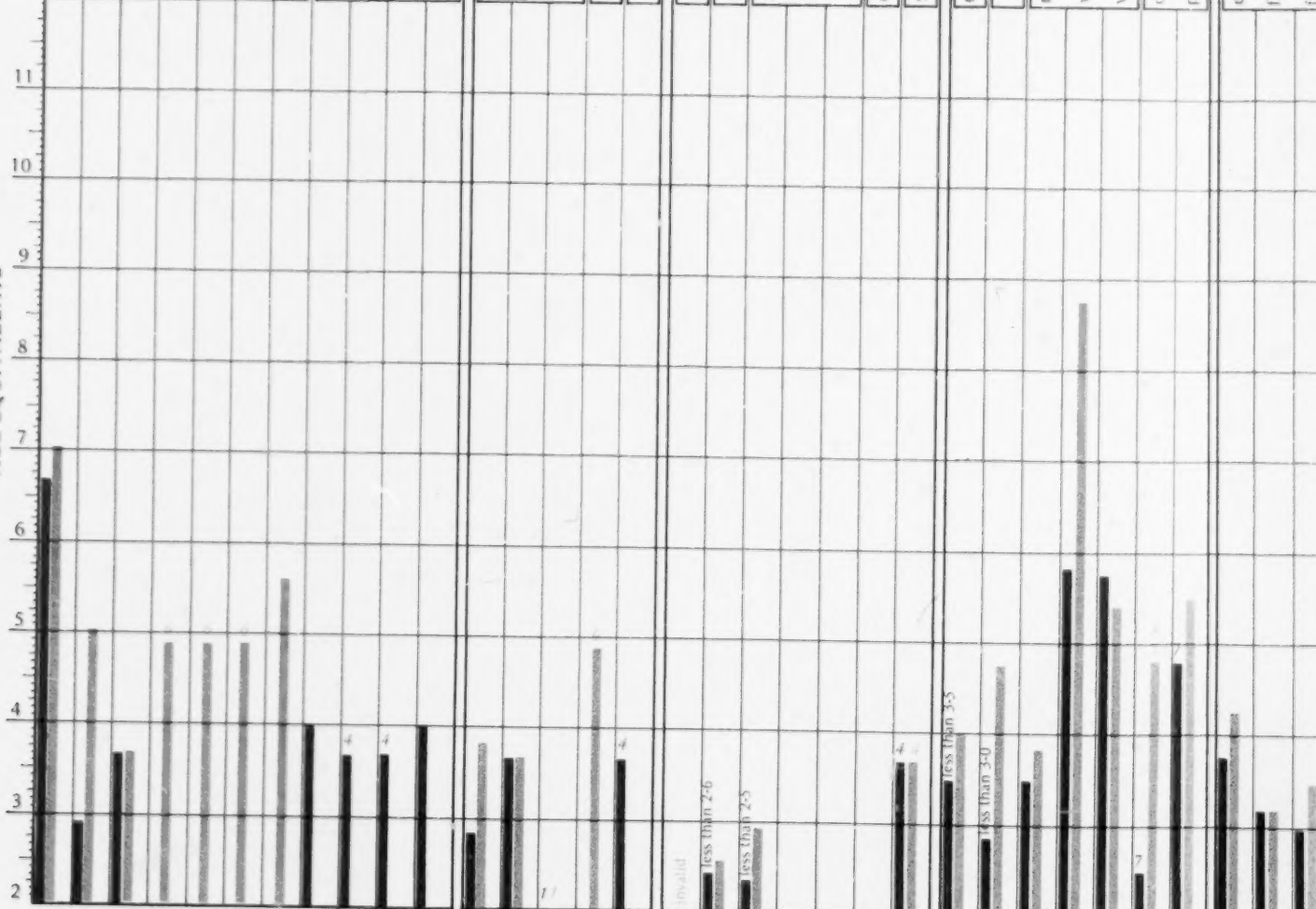
WEPMAN	BINET	ITPA ^{ex}	WISC	WPPSI
aud. discrim.	digit span	auditory-vocal seq.	digit span	sentences

IV NON-VERBAL CONCEPTS & REASONING

RAVENS	DRAW-A-PERSON	ITPA ^{ex}	WISC
matrices	motor encoding	visual decoding	object assembly
		visual-motor assoc.	picture arrangement

V VISUAL PERCEPTION & VISUAL MOTOR

FROSTIG
eye motor
figure-ground
form constancy



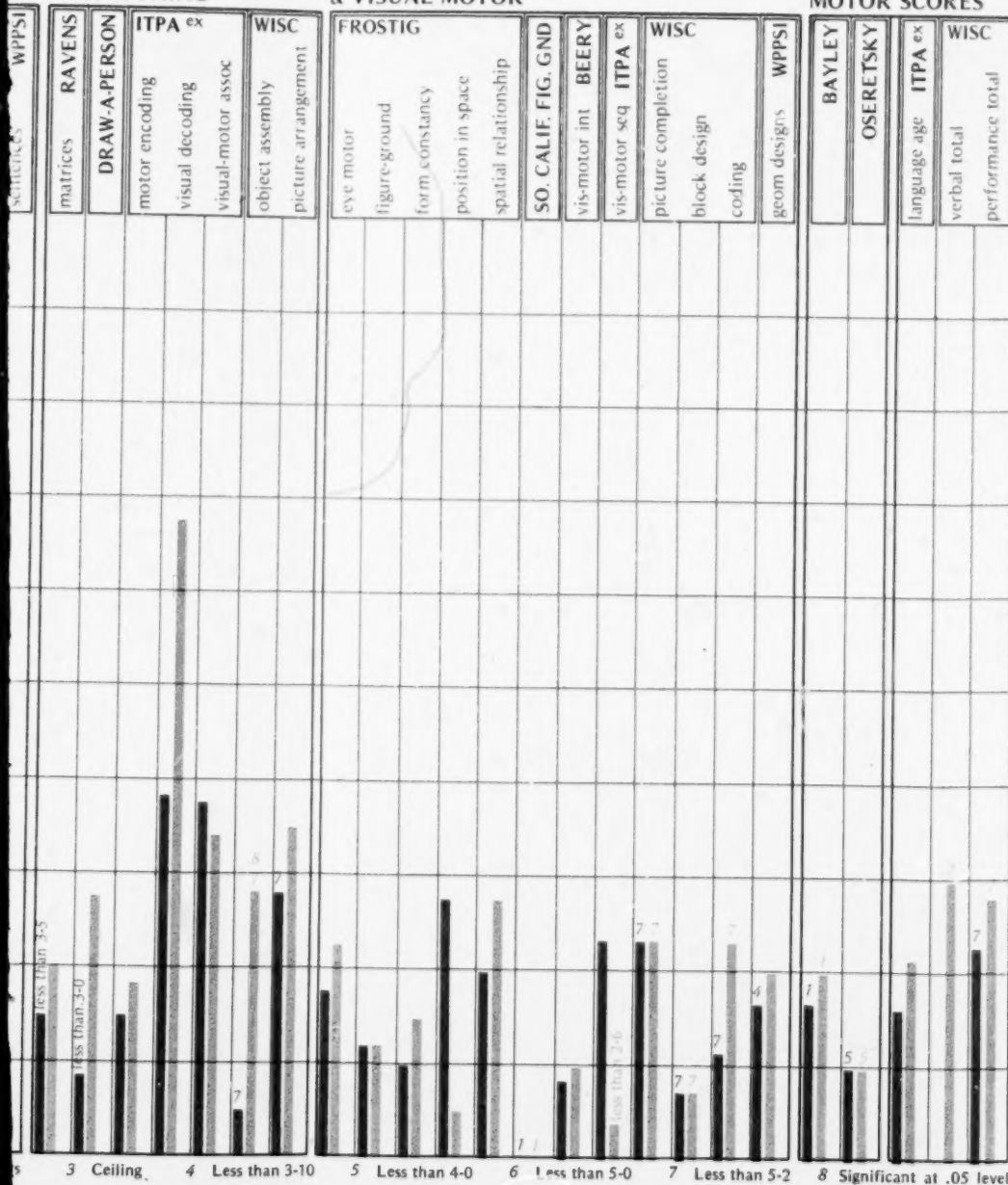
IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
& VISUAL MOTOR

VI
GROSS
MOTOR SCORES

VII
TOTAL
MOTOR SCORES

VIII
ADDITIONAL
MEASURES



ML⁵R (Templin)

Mean length of the five longest responses of 50

1 to 2 words
2 to 3 words

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
7-8	86%	14%	0	0
7-8	54%	46%	0	0

SKIP

- September, 1968 Skip: *That red light.*
 age 7-8
- June, 1969 Skip: *Some boy fall down and some dog*
 age 8-5 *watching him fall down.*
- May, 1970 Skip: *Las' Friday guess what me do after*
 age 9-4 *me see my father go on airplane?*

Skip had received extensive speech and language therapy at the Easter Seal Treatment Center from preschool days and had been enrolled for one year in a public school class for mildly retarded children. The first Title VI-A summary on Skip stated:

Skip is a seven-year, eight-month-old boy who was diagnosed as neurologically impaired at birth and has a history of delayed development and obesity.* [In September, 1968, Skip weighed 118 lbs. — about 8 lbs. more than his teacher-therapist.] Language was especially slow developing, and speech is at present unintelligible. In spite of his obvious handicaps, Skip appears to be a well adjusted child and is highly motivated for learning.

Current audiological findings indicate normal hearing for the aquisition of speech and language. Speech evaluation revealed an extremely severe articulation problem but essentially normal formation of the oral mechanism except for difficulty with tongue movements. Auditory memory is poor, however, with consistent functioning approximately four years below chronological age. Receptive language for single words is approximately one year below chronological age but three years below for connected language. Expressive language appears to be approximately a year delayed for single words but significantly poorer for connected language though scores are inconsistent. Visual

*Although extensive tests had been done on Skip, it was not until the 1970-71 school year that he was diagnosed as having Prader-Willi syndrome, a condition characterized by obesity and some degree of retardation.

discrimination scores range from the five-and-one-half-year-old level to nine-year-old level, while visual motor and visual memory scores ranged from age level to three years below age level. Skip has no clearly established pattern of dominance. Valid assessment of gross motor coordination is prevented by Skip's obesity. His physique significantly interferes with his performance causing him to function approximately three years below age level. Though also below age level, fine motor coordination is considerably better than gross. Both reading and arithmetic skills are at the low first grade level.

Intellectual assessment with nonlanguage tests yielded scores in the slow learner range of ability. Language intelligence scores would no doubt be considerably lower, however. It appears that Skip is most impaired in the auditory channel. Though visual and motor modalities are also impaired to some extent, the handicap is milder in these channels. This in conjunction with adequate potential for learning and excellent motivation makes a favorable prognosis for improvement.

Skip was happy in the language class. He became much more talkative and socially involved with the other children. He worked earnestly and persistently. In June, 1969, when he was 8-5, Skip's first year in the language class was summarized as follows:

Skip has improved in some areas, the most notable being in expressive language and academic skills. Little real change is seen in other areas, while skill has actually decreased in some of the visual areas. The overall picture, however, is one of progress, but at a slow rate. This is consistent with what should be expected in terms of intellectual potential. While IQ scores did go up, especially in the nonlanguage area, it appears that overall ability is in the borderline to slow learner range.

Audiological findings indicate normal hearing for the acquisition of speech and language but revealed a very mild conductive loss bilaterally in the high frequencies which

had not previously been in evidence. Speech evaluation showed some improved vowel articulations, but speech remains essentially unintelligible. Tongue mobility is now adequate, but diadochokinetic rate though better, is still below expectancy for his age. Auditory memory span is still approximately four years below age level. Auditory discrimination ability is better but still approximately two years below chronological age. An analysis of expressive language shows fewer grammatical and syntactical errors as well as increased sentence length. Test scores in this area are improved but are still approximately two years below age level. No measurable progress is seen in visual memory, and visual discrimination is poorer than previously. Scores are inconsistent in this area also, ranging from one year above age level to three years below. Left dominance is now established. Development of gross motor skills is still handicapped by physique. Scores range from the two- to five-year-old level. Though somewhat improved and considerably better than gross motor skills, the fine motor skills are poor. Reading is at the first grade level, approximately a year's growth. Arithmetic is at second grade level and has shown equal improvement.

Though Skip's progress has been slow this year, it is felt that the increased language facility and the improvement in academic ability is sufficient evidence of his having derived considerable benefit from this type of program. It is recommended that he remain in the language disability class for another year and be reevaluated again at the end of that time. Though visual skills are still somewhat better than auditory skills, the lack of real growth in the former suggests that Skip will need help in both areas if he is to continue to make progress; that is, the visual skills are not good enough or developing naturally on their own so that he can be expected to rely on them without additional help in this channel, too. Attention should also be given to improving auditory skills if growth is to continue in oral language.

The May, 1970, summary of Skip, then 9-4, concluded:

This evaluation was made to assess progress this year after Skip attended an experimental/demonstration class for children with language disabilities for two years. Performance on the WISC continues to show the large discrepancy between verbal and performance scales, with the performance score in the average range and the verbal score in the borderline retarded range.

Speech proficiency and intelligibility have improved, but Skip still misarticulates some sounds and omits syllables in multisyllabic words. Coordination and speed of tongue movement have shown improvement. Auditory discrimination and auditory memory are both below normal ranges. The most recent audiological evaluation indicates that hearing acuity is within normal limits for most sound frequencies; but since performance has been inconsistent, it is recommended that a recheck be made next year. Use of correct grammatical forms continues to be substantially below age level. Syntax has improved but Skip still does some telescoping of sentences. Word order of question forms has improved. The quantity of speech has increased, and Skip is better able to transmit ideas and experiences. Sentence length remains substantially below age level.

Although ITPA scores in the visual-motor area were below normal limits and were lower than the corresponding auditory-vocal scores, performance was approximately at age level on the Frostig with the exception of the eye-motor and position in space subtests. Scores on the eye-motor subtest and on the Beery Visual Integration Test were substantially below age level. Fine finger movements are awkward, and gross motor performance is approximately four years below age level. Skip's obesity is probably one factor relating to his poor gross motor development.

Skip has been working in a high first reader with some success but has made slow progress in arithmetic.

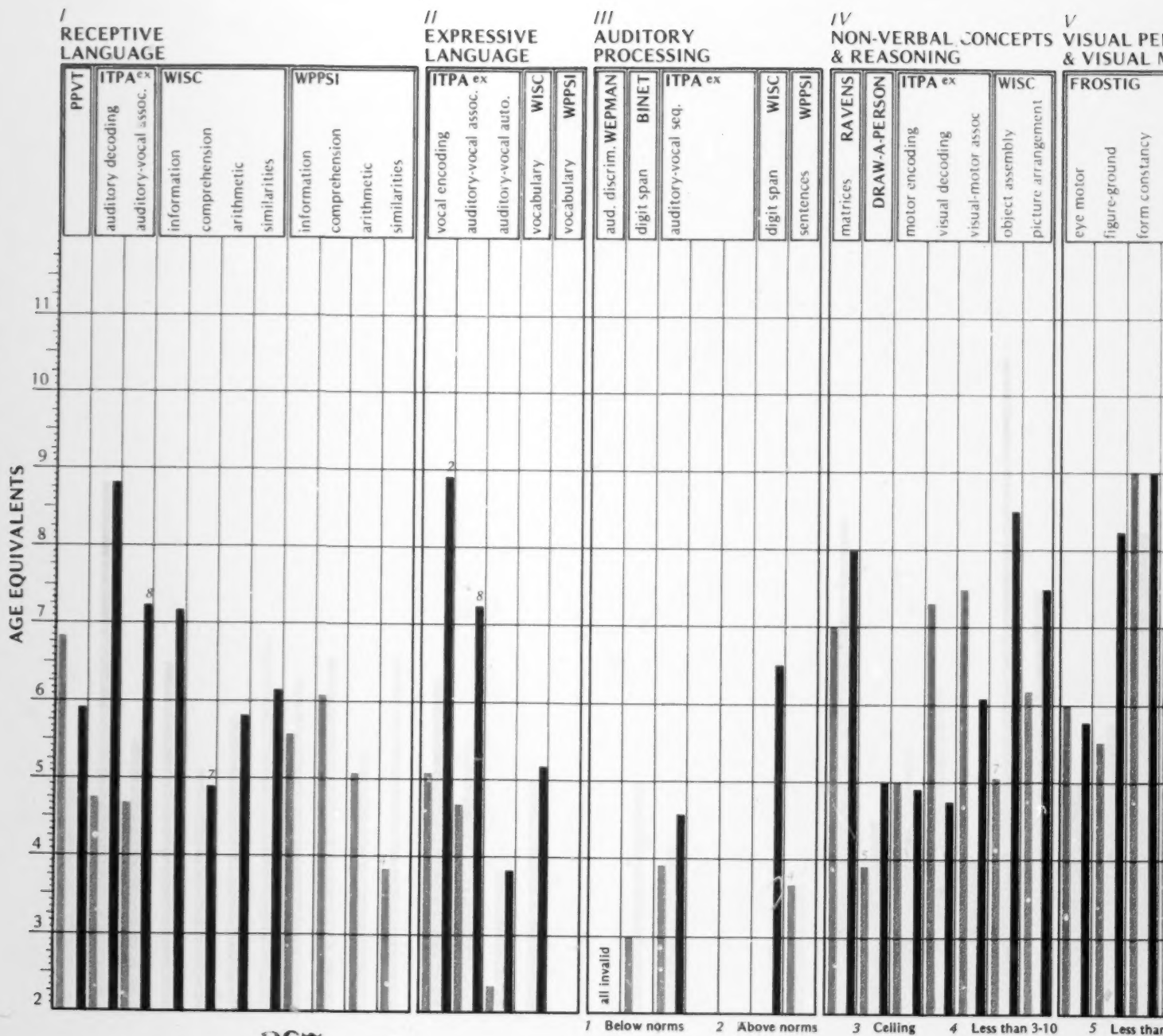
Although Skip has shown gains in this program, it is felt that he is reaching a point of diminishing returns in terms

of using the language class as the primary focus for his educational program. He has received speech and language therapy since preschool and he is now 9-4. He continues to need speech and language work to maintain performance and to improve grammar, syntax, and articulation; but complete remediation is not expected, and the prognosis for marked improvement is slight.

When trying to look ahead for Skip and to the facilities available next year, it is felt that this is the time to move into a different special education program. The name of the program ("mildly retarded" or "specific learning disability") is not as important as finding a class where Skip will have academic skills reinforced and will also be able to obtain speech and language support. He will also need follow-up by the language resource specialist if that position is approved.

Skip was placed in a Specific Learning Disabilities class with an experienced teacher. The school speech therapist worked with him twice a week, and he also had after-school therapy twice a week. The Title VI-A language resource specialist met with both the teacher and the therapist several times and gave them specific suggestions for helping Skip. The teacher's statements about Skip's progress during the 1970-71 school year included the information that he talked very little in school and did not tell about things that had happened at home. He was working on the same reading and math levels as he had in the middle of the previous year.

To summarize, Skip's intelligibility and syntactic skills improved in the language class setting, allowing him to assert his personality verbally with fewer covert pinches and pushes used to express disapproval or frustration. His consistent, earnest effort during the long school day would probably have been evidenced in any classroom, but his awareness that he really was making progress gave a dimension of joy to this doggedness. Skip participated wholeheartedly in all activities of the class and encouraged the other children to do the same. When Robbie was called on at news time one day and said he had no news, Skip indignantly shouted "But you *gotta* have news!"



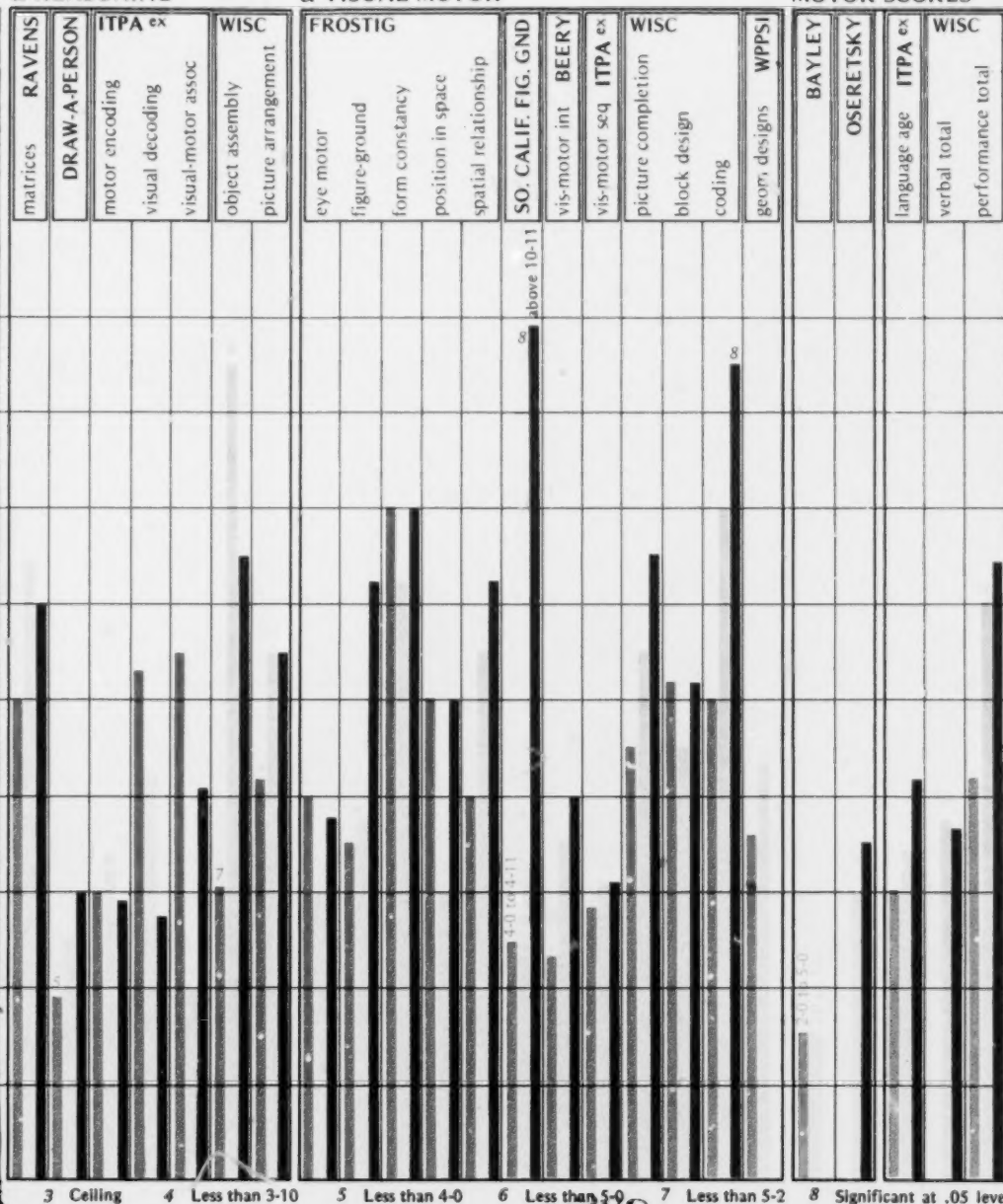
IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
& VISUAL MOTOR

VI
GROSS
MOTOR SCORES

VII
TOTAL
SCORES

VIII
ADDITIONAL
MEASURES



ML⁵R (Templin)

Mean length of the five longest responses of 50

8.0 words
11.2 words

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
6-4	64%	15%	7%	14%
7-3	17%	32%	8%	43%
8-3	14%	14%	5%	66%

Word Recognition Scores

age	pre-primer	primer	high 1st	low 2nd	high 2nd
6-4	72%	32%	12%	12%	
7-3	88%	68%	36%	32%	
8-3	100%	96%	88%	48%	20%

Northwestern Syntax Screening Test

age Receptive score: 30
9-0 Expressive score: 12 (percentiles too old)

9 yr-4 mo

8 yr-5 mo

7 yr-8 mo

Age at times of testing

Not all tests given at each interval

Skip

WILBERT

- January, 1969
age 6-2 Wilbert: *If I drink Pepsi, I will be gone. If you drink chocolate milk, you will go up and sit on the clock. If we sit on the clock, we will fall down.*
- June, 1969
age 6-7 Wilbert: *You know what we could do Miss Trudy told me with these?*
- May, 1970
age 7-6 Wilbert: *It was raining and it took a long time for me to get home while it was raining. . . I put my foot in some water and I left my my shoe off.*

Wilbert was the only student in the original language class whose problems were predominantly in the semantic area. Observers often questioned his suitability for the class since his speech was normal and he usually produced normally grammatical sentences. His often inappropriate or bizarre language would be noted only after listening to him for awhile. He tended to act lethargic. He often isolated himself from the rest of the class.

The psychologist's first summary of Wilbert at age 5-9 in August, 1969, stated:

Wilbert is a five-year, nine-month-old boy whose development was normal except for slow acquisition of speech. A language disability was first noted by his kindergarten teacher, who observed difficulty following directions, poor concept development, and poor comprehension of orally presented material. Wilbert is poorly motivated for learning and also for test taking. Much avoidance and defensive behavior is typical both in class and during the testing. His poor attitude contributed significantly to the inconsistent test performance.

Current audiological assessment indicates hearing normal for the acquisition of speech and language. Speech evaluation revealed mild misarticulations which were stimutable to correction. Conversational speech is quite

intelligible. Speech mechanism is essentially normal except for difficulty with tongue movements and slow diadochokinetic rate. Auditory memory is two to three years below chronological age. Auditory discrimination tests were invalid due to perseverative responses, but his verbalization throughout all testing suggests failure to discriminate between rhyming words. An analysis of Wilbert's expressive language revealed content and concept disorganization. Communication is handicapped by irrelevant, unlikely, and/or bizarre comments. Scores earned on tasks measuring expressive connected language range from one to three years below age level. Similar inconsistency is seen on tasks requiring a one-word response. Receptive language is approximately one year below age level for both single words and connected language. Visual discrimination is one to two years below age level. Visual-motor ability is one to one and one-half years below age level. Performance on visual memory tasks was so inconsistent, meaningful conclusions regarding ability in this area are precluded.

Wilbert is primarily right dominant. Gross motor coordination is generally adequate though some difficulty with tasks involving balance was noted. Fine motor coordination was inconsistent ranging from adequate for Wilbert's chronological age to significantly below age level. Wilbert is able to do some reading readiness tasks but can't read at all. He has adequate arithmetic and number concepts for his age.

Intellectual assessment with nonlanguage tests (WISC) yielded scores in the slow learner range of abilities. Scores on language intelligence items (WPPSI) yielded slightly lower scores in the borderline retarded range. Performance was average on both the Ravens and Draw-a-Person, however.

It appears that Wilbert is most handicapped in the auditory channels. The visual and motor modalities are also impaired to some extent, though both are better than the auditory channel and motor ability is better than visual.

In June, 1969, when Wilbert was 6-7, the psychologist summarized in part:

Following nine months of attendance in a demonstration/experimental class for children with language disabilities, Wilbert was referred for reevaluation in order to assess progress.

Wilbert has improved in some areas while little or no change is seen in others. Perhaps the most obvious growth is in ability to listen and interpret and follow directions with a concomitant decrease in "tuning out" and other defensive, avoidant behavior. This resulted in significantly improved scores on all intelligence tests. That is, Wilbert is now able to make better use of his ability which now appears to be in the slow learner to normal range. He is still significantly handicapped in actual academic achievement by his language and visual memory deficits, as well as rather poor motivation for acquiring these skills. . . .

The growth in expressive language skills and better ability to understand what is said to him suggest that Wilbert has benefited from the language disability class in spite of overall rather slow progress. It is recommended that he remain in the class. Though visual skills are still somewhat better than auditory, the lack of real growth in the former (especially visual memory and discrimination) suggests Wilbert will need increased help in this area as well as with auditory skills if he is to progress. Attention also needs to be given to improving motivation for learning. . . .

After a second year in the special language class, Wilbert's status at age 7-7 was partially summarized as follows:

Results of intelligence testing were essentially the same as a year ago and are within the normal range. General improvement was seen in cooperation and attention during testing sessions. . . .

Performance on auditory memory and auditory discrimination tasks is still poor. Receptive language skills are

variable, and scores range from one to two and one-half years below age level. Comprehension in general conversational activities is frequently a problem unless presented in small units. Expressive language has improved in both quantity and grammatical complexity. Some word retrieval problems are still evident. Although total performance on the ITPA was again below normal limits, Wilbert demonstrated significant increase in his overall score from the previous year in relation to his age group.

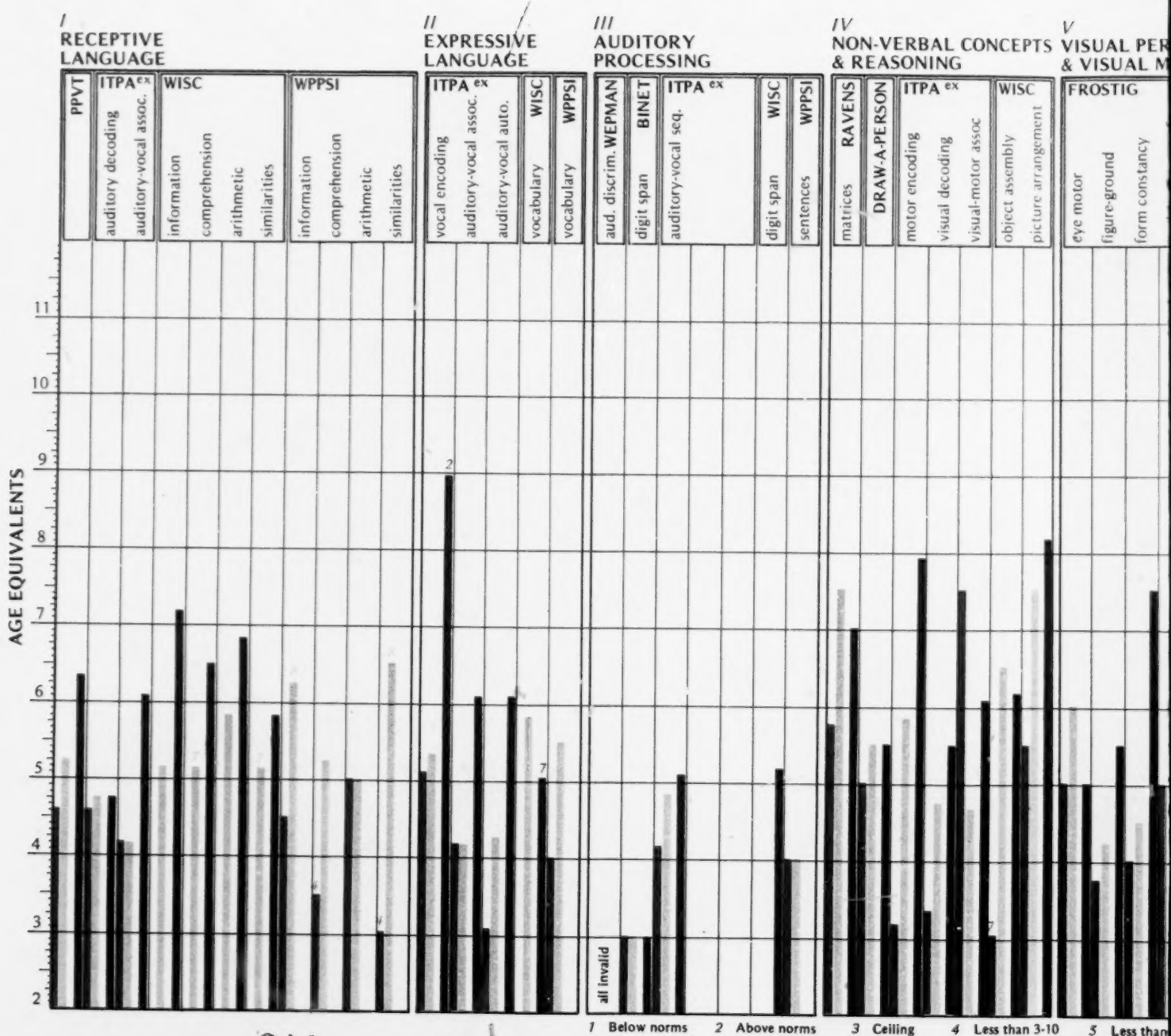
Performance on visual discrimination measures was variable but generally remained below age level. Visual-motor performance, which was approximately at age level last year, has not increased with chronological age. Reliability of some of the scores is questionable, however, since motivation was not always good for these tests. Both gross and fine motor coordination are below age level.

Reading skills have now progressed to primer level, but progress has been slow and laborious. Arithmetic progress has also been very slow. However, Wilbert seemed more alert, more aware of environment, and more curious in relevant fashion, especially during the last month of school.

Wilbert continues to function in fragmented fashion and often demonstrates inappropriate effect. Although expressive language shows improvement and Wilbert seems somewhat better organized, it is expected that he will still need the concentrated and individualized instruction and attention which the language class provides.

Wilbert continued in the language class a third year (1970-71) and began taking math instruction in a regular second grade shortly after Christmas. A spurt in motivation and learning occurred mid-year with accompanying rapid improvement in self-confidence. These gains were maintained, but by spring his rate of growth had appeared to slow down somewhat. Wilbert was generally considerably more "tuned in" and able to feel competent in many areas. While he was not yet ready to move out of the language class setting, it seemed likely that he would eventually be able to function in a regular class.

Wilbert's greatest gains were displayed in his growing recognition of cause and effect connections. He discovered that there are explanations for experiences and that there is continuity in life. Early in his second year in the class Wilbert would excitedly report, "I know why — it's 'cause. . .!" Once this awareness developed, Wilbert's rate of progress in math and all academic areas increased greatly. His learning is still characterized by spurts of improvement alternating with plateaus.



IV
NON-VERBAL CONCEPTS
& REASONING

matrices	RAVENS
DRAW-A-PERSON	
motor encoding	ITPA ex
visual decoding	
visual-motor assoc	
object assembly	WISC
picture arrangement	

V
VISUAL PERCEPTION
& VISUAL MOTOR

FROSTIG				
eye motor	figure-ground	form constancy	position in space	spatial relationship
SO. CALIF. FIG. GND				
vis-motor int	BEERY	vis-motor seq	ITPA ex	WISC
picture completion		block design		
coding				
geom designs	WPPSI			

VI
GROSS MOTOR SCORES

BAYLEY
OSERETSKY

VII
TOTAL MOTOR SCORES

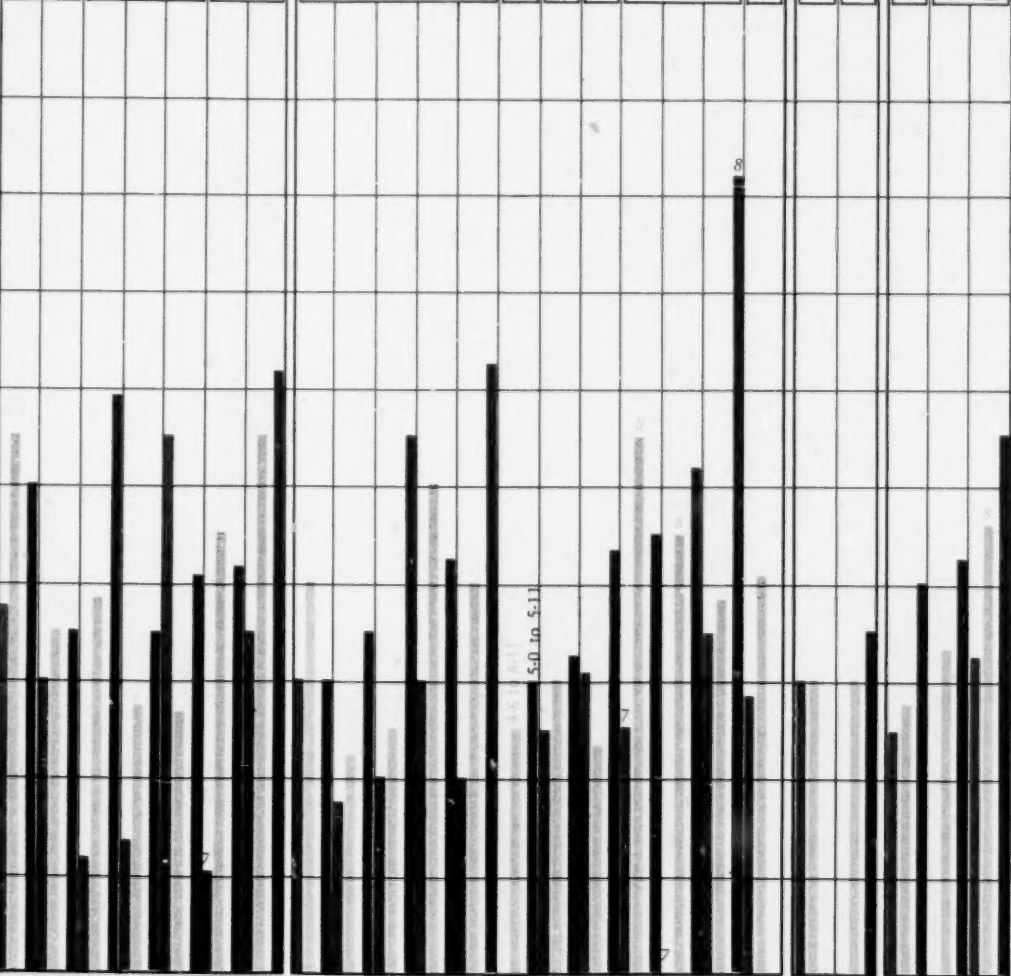
language age	ITPA ex
verbal total	WISC
performance total	

VIII
ADDITIONAL MEASURES

ML ⁵ R (Templin)				
Mean length of the five longest responses of 50				
	10 words			
	11 words			
	15.4 words			
Developmental Sentence Types (Lee)				
age	single words	two-word combinations	constructions	sentences
	22%	22%	39%	17%
	15%	14%	5%	66%
	3%	6%	14%	77%
Word Recognition Scores				
	pre-primer	primer	high 1st	low 2nd
	4%	4%	0	0
	84%	12%	0	0

Northwestern Syntax Screening Test

Receptive score: 34
Expressive score: 31



7 yr-5 mo
6 yr-6 mo
5 yr-10 mo

Age at times of testing
Not all tests given at each interval

DANNY

June, 1969
age 7-2

Danny: *Some girl's caught a fish and a boy
and a man is put the animals away.*

April, 1970
age 8-0

Danny: *Tell your mother how much is
that go to the store and buy some.*

Danny had entered first grade at his parents' request, even though school personnel had recommended that he repeat kindergarten. His first grade teacher reported that Danny "does not appear to understand and does not correctly respond to questions. Recently he has tended to be quiet with his head bowed."

A neurological examination revealed no gross abnormalities but "evidence of neurologic immaturity in terms of fine motor sequencing as well as some difficulties with following simple auditory inputs as well as more complex visual inputs. . . ." The school psychologist concluded that "Danny is a child of normal ability. . . . His deficits are such that it will be very difficult for him to function in a regular class setting. Decoding and encoding skills are too unde eloped to enable him to learn to read. . . ."

In the spring of his first grade year, April, 1969, the Title VI-A psychologist screened Danny for admission to the joint special language class. She summarized:

Danny is a seven-year-old first grader who is experiencing academic problems. He is an attractive boy who smiled readily though he seemed rather tense. Flaky patches of skin were noted on his checks, elbows, and wrists. Motivation was good.

Danny conversed readily, primarily using single words, phrases, or short sentences. Some misarticulations were noted as well as reversals of sounds and/or syllables within words. Some echolalia was also in evidence. Danny had difficulty following directions, and there was often a noticeable delay before he responded. His voice is deep, somewhat hoarse sounding with low volume.

Danny did not attend to initial consonants and consequently had difficulty with word blending activities. He also had difficulty identifying plural sounds. He was not able to name colors consistently. Danny can count by rote but does not identify number symbols. He recognizes the names of only those letters of the alphabet which appear in his name. He prints well and performed at age level on WPPSI geometric designs which is also a visual-motor task. His performance on similarities, a test of verbal concept formation, was two and one-half years below chronological age. Danny's drawing of a person was primitive with numerous essential elements omitted and revealing some confusion of body image. It was at approximately a four-and-one-half-year-old level.

The examiner concurs with the school psychologist's opinion that Danny has a moderate learning disability which is manifested primarily in poor language skills. Deficits appear in auditory reception, memory, and association. Visual skills seem to be more intact. It is recommended that Danny be considered for placement in the joint special language class in the fall of 1969 and attend the summer session also, if arrangements can be made for him and the parents agree.

Danny entered the class for the summer session in June, 1969, and remained in it for the 1969-70 school year. The summary of May, 1970, when Danny was 8-1, follows:

This evaluation was made to assess progress after Danny attended an experimental/demonstration class for children with specific language disabilities for ten months. Full scale performance on the WISC remained within the average range, but the verbal and performance portions showed fluctuation from last year. The verbal score was depressed by poorer performance on the similarities and vocabulary subtests, but the score increased on the performance scale. It was noted on two or three occasions that Danny had difficulty breaking perseverative behavior when the correct response was not readily apparent to him.

The audiological evaluation indicated normal hearing acuity, but auditory memory and discrimination were both areas of difficulty. Speech is usually intelligible although Danny exhibits some articulation errors and frequently misproduces multisyllable words. The oral structures are within normal limits, but the voice is characterized by mild hoarseness.

Although the mean scaled score for the ITPA is now within the normal range, performance on all auditory subtests is below that for the corresponding visual subtests; and auditory scores are low enough to indicate difficulty in this channel. Scores in the visual area also show greater gains over the past year. Difficulties in word finding and sequencing of syllables and words continue to handicap communication although Danny made improvement in these areas this year. Grammar skills have also improved although they are still below age level.

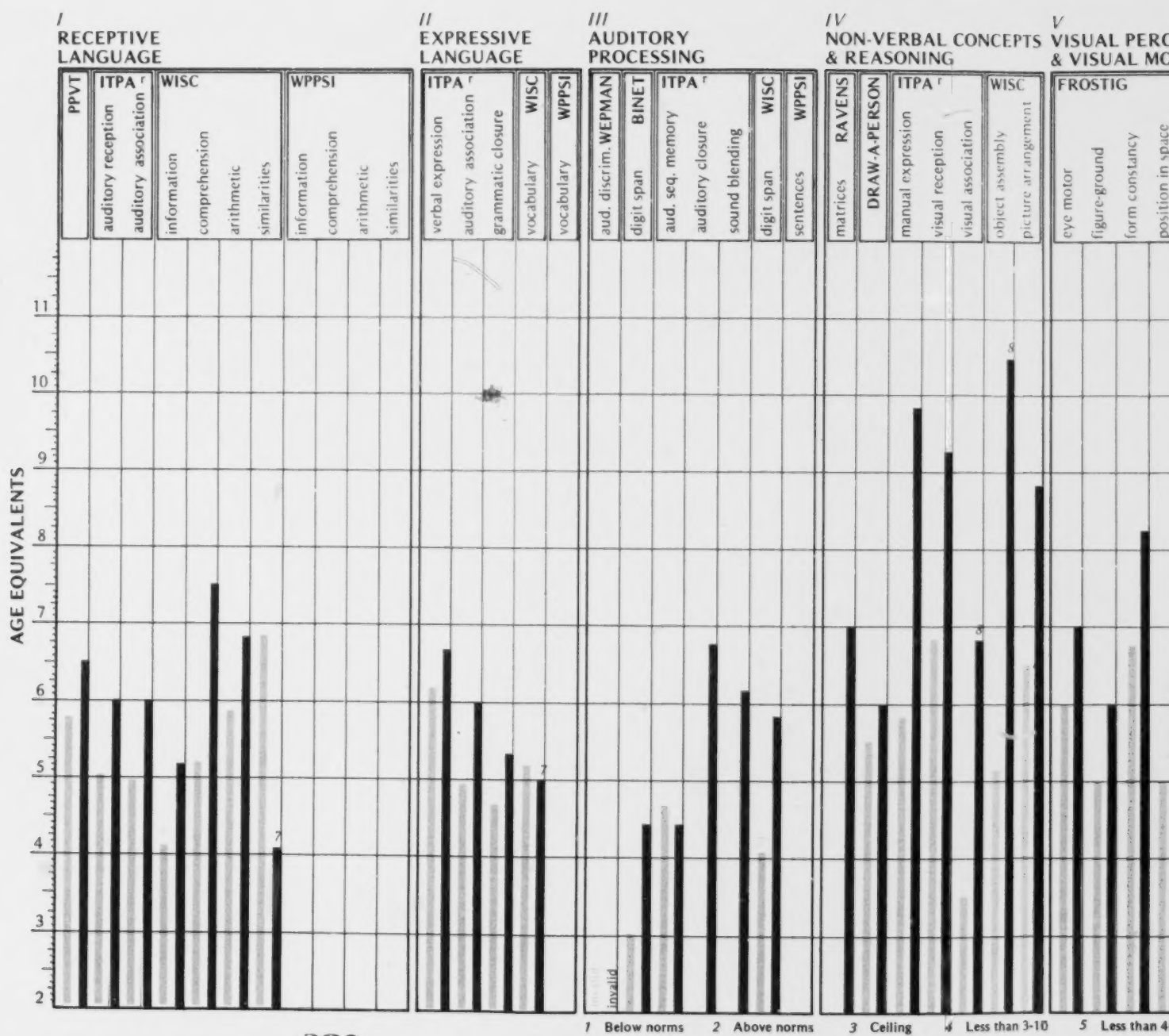
Performance on visual perceptual measures remains inconsistent, ranging from two years below age level to more than two years above. Although performance on the Southern California Test of Figure-Ground Perception was within normal limits, the figure-ground subtest of the Frostig was not. Performance on the Frostig position in space subtest was low. ITPA subtests in the visual area were within the average range. Visual-motor scores were one to one and one-half years below age level. Gross and fine motor skills appear to be approximately at age level. Laterality preference has been established on the right side.

Reading progress has been slow. Danny has difficulty remembering letter sounds and, therefore, is poorly equipped to sound out words. He also has difficulty recognizing words in a different context from that in which he has learned to identify them by sight.

Danny has made progress in the program this year, but his language problems remain severe enough for him to need to continue in the class next year.

Danny's progress during the 1970-71 school year, when the language classes had become part of the school system's special education offerings, was steady but not remarkable. His teacher-therapist reported that he still lacked many concepts, still had word-finding difficulties, and had not shown very significant cognitive growth. He was using the Sullivan Programmed Readers, making slow but steady progress, and mastering phonics. He was doing second grade math in a regular classroom with adequate comprehension. Science had become a major interest. He still exhibited motor disorganization in trying to figure out how or where to place the paper and pencil or crayon or scissors, and he asked repeatedly, "Like how?" Danny's auditory memory showed considerable improvement. He was able to remember a long series of directions and could carry them out.

Gains in the language class for Danny were not as dramatic as they were for some of the children, but the primary benefit of his placement there was that every possible way of working through his problems could be tried. He maintained his even-tempered, pleasant personality. He became more aware of his abilities and also of his disabilities, thus establishing a realistic basis for self-evaluation. Despite continued difficulties in learning to read and to grasp concepts, he is presently making progress. Continued placement in this structured class should enable Danny to find ways to help himself learn.

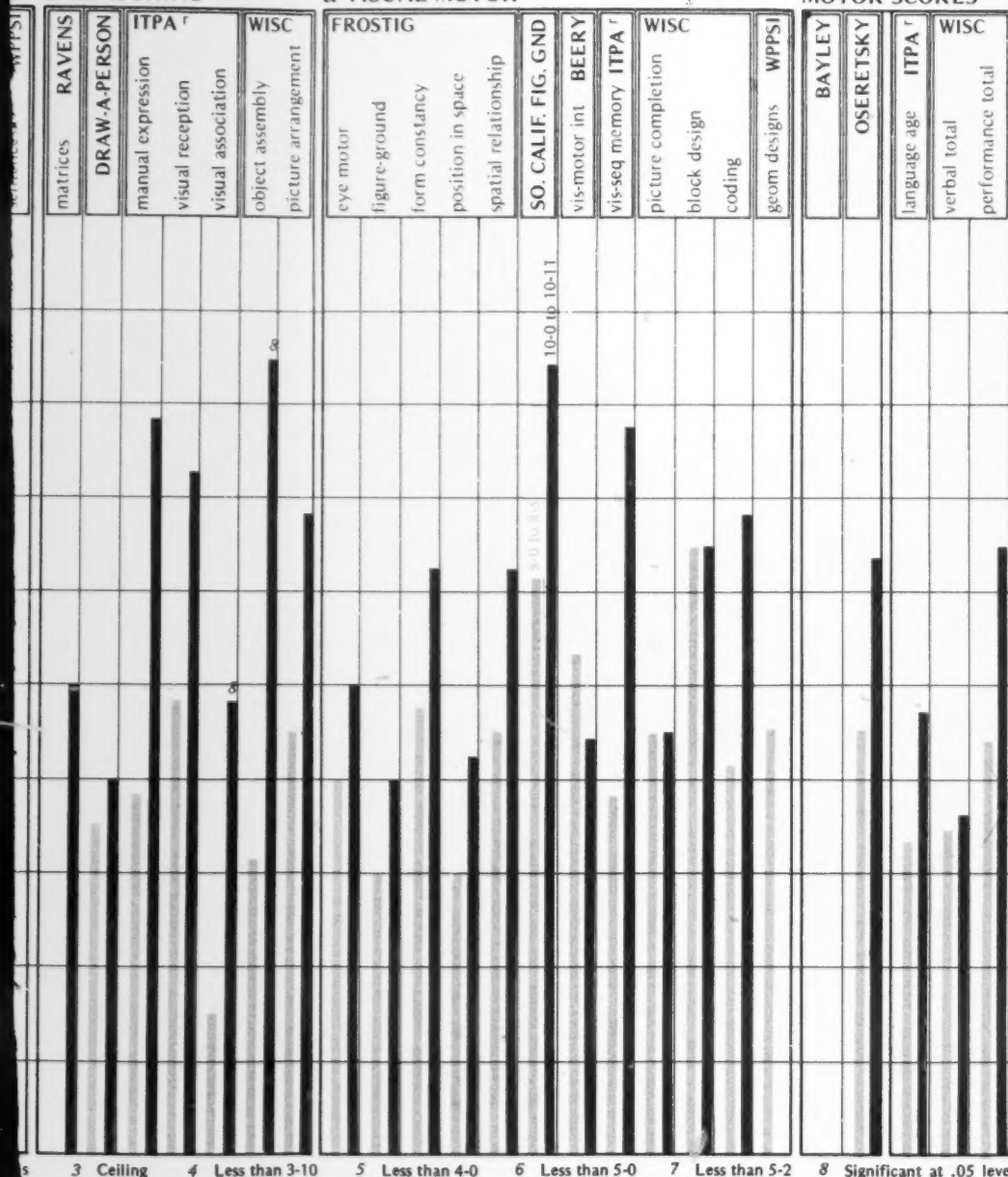


IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
& VISUAL MOTOR

VI
GROSS TOTAL
MOTOR SCORES

VII
TOTAL
ADDITIONAL
MEASURES



ML⁵R (Templin)

Mean length of the five longest responses at 50

10.8 words
9.8 words

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
7-8	7%	3%	1%	74%
8-0	14%	14%	5%	66%

Word Recognition Scores

age	pre-primer	primer	high 1st	low 2nd
7-8	32%	12%	0	0
8-0	52%	16%	0	0

Northwestern Syntax Screening Test

age Receptive score: 31 (percentiles '00 old)
Expressive score: 19

Danny

NORTON

June, 1969
age 8-0

Norton: *That little boy dropping hay.*

April, 1970
age 8-10

Norton: *See, there's two people in one car
and one people in another car.*

Norton was screened for admission to the Title VI-A class in April, 1969, when he was 7-10. An abstract of the psychologist's report follows:

Norton is repeating first grade this year and making very slow progress. His teacher reported that he is reading in the third preprimer and that it sometimes takes thirty to fifty exposures of a word for him to retain it. She stated that learning is sometimes accomplished more quickly, however, if Norton is given an additional visual clue for remembering the word.

Norton is a large, sturdy appearing youngster with a cheerful, outgoing manner. He exhibited mild hyperactivity and distractibility but worked readily. Impulse control was weak; Norton tended to blurt out the first thing that came to mind and race the stopwatch. Thus his performance was often careless and hasty and his facility for paying attention to details was poor. He frequently drummed his fingers, tapped his feet, and whistled. This behavior appeared defensive in nature and was used to cover up what he didn't know as well as to release tension. Tension was also revealed by facial grimaces and nail biting.

Norton converses easily with good communicative intent. Speech is readily understandable though mild articulation errors were noticed. Norton showed evidence of word retrieval difficulties and sometimes used imprecise synonyms for the words he wanted. For example, when asked what sound a clock makes, he said *click, click* and then *ding, dong* instead of *tick-tick* or *tick-tock*.

On the WISC, Norton earned a nonlanguage IQ in the average range. Language activities revealed delays in both reception and expression. Auditory memory and discrimination are especially poor. Visual and motor skills appear relatively intact.

In view of Norton's academic difficulties, his deficits in auditory skills, and impairments in language areas, it is felt that he would benefit greatly from an intensive language program. Therefore, it is recommended that he be considered for placement in the joint special language class beginning in the summer of 1969 if all arrangements can be made for him.

The arrangements were made, and Norton continued in the class for the 1969-70 school year. Near the end of the year, when he was 8-11, the psychologist summarized the retest findings:

Speech is readily intelligible, and Norton has corrected the majority of the few articulation errors noted last fall. Diadochokinetic rate for single sounds has improved to normal level, but repetition of a sequence of sounds is below normal limits. Lateralization and protrusion of tongue are also below normal limits. Audiological testing indicated hearing acuity within normal limits except for pure tone administered at 6000 Hz, which was 30 dB for each ear. ITPA subtests were all within the broad range of normal except for grammatic closure, which was one of two subtests which showed a decrease. Performance was also poor on the Northwestern Syntax Screening Test. An unusual pattern of higher performance on expressive than receptive use of syntax was demonstrated.

Most scores on measures of visual perception and visual-motor skills were close to age level. Two exceptions were the Frostig position in space subtest, which dropped from performance at the ceiling of the test last year to the 7-0 level this year, and the Beery Test of Visual-Motor Integration, which also dropped in score from last year. It was felt that his disruptive behavior adversely influenced his performances on the Beery. Although most scores

indicated adequate performance, it was noted that left-to-right progression was inconsistent, that Norton turned his body to avoid crossing his own midline, and that he rotated the booklet to scan and moved his body to manipulate the pencil.

Wide scatter was noted on gross motor assessment tasks. Total performance was approximately one-half year below age level. Hand and foot preference appear to be tied to the task, but the right hand is preferred for writing.

Reading has been a major problem for Norton and seems to be influenced by a strong fear of being unsuccessful. Norton's definition of success appears to have rather narrow limits, and consequently it is very difficult for him to see himself as successful and for the teacher-therapist to find a level at which he can work comfortably. Skills such as sound blending, which Norton can use out of context, depart when he is to apply them to a task which he construes as actual reading.

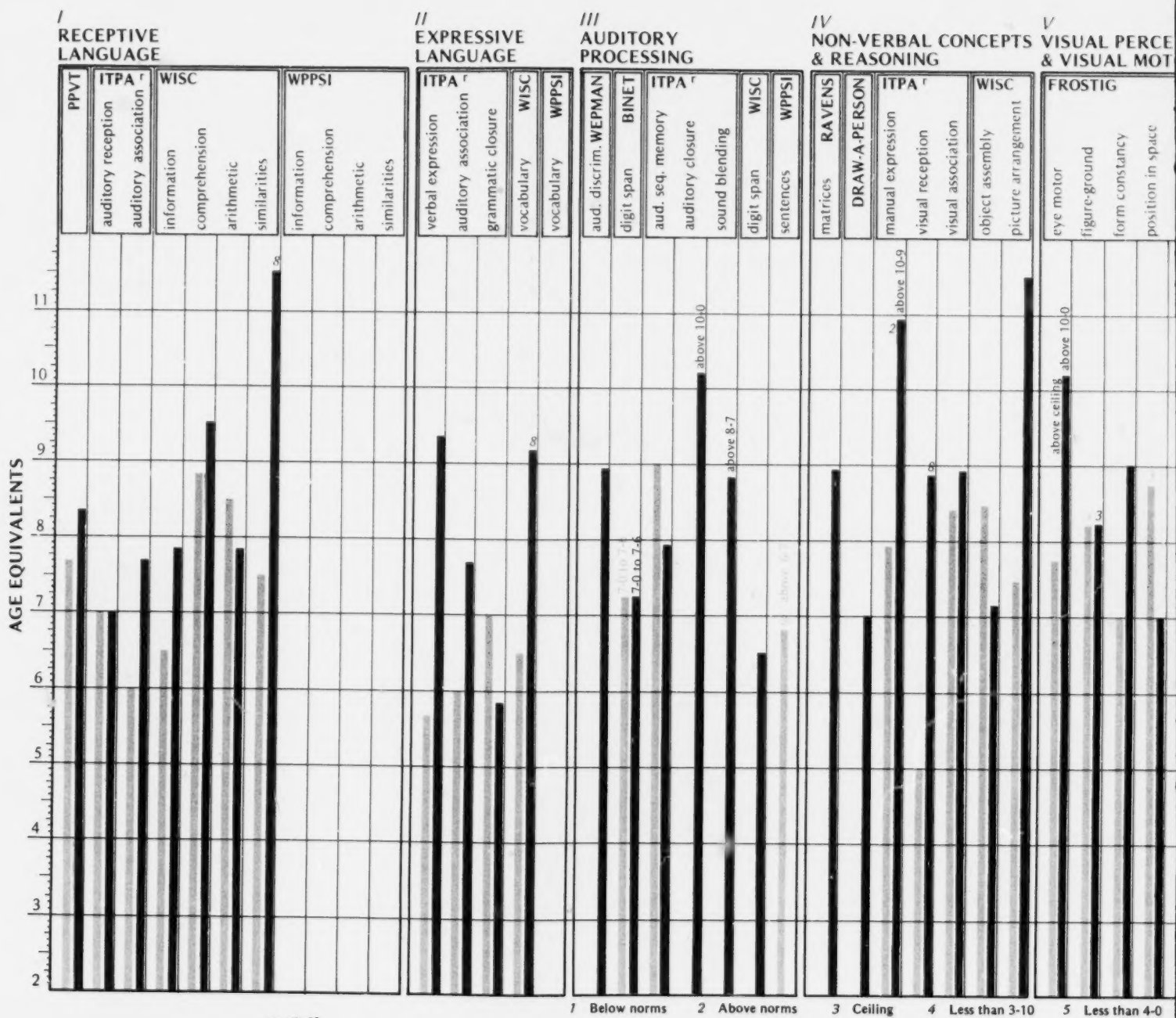
Norton's reaction to his feelings of inadequacy at the beginning of the year was to act "cocky." By the end of the year, he was openly expressing his feelings. If a task was failed, he usually refused to try again. Such failure often resulted in deterioration of performance on easier tasks which were well within his level of capability. Norton's difficulties in coping with failure, as we saw it, were also apparent in any competitive situation in which he did not naturally excel. A concerted effort was made by the staff to reduce pressure on Norton and to provide encouragement and successful experiences. This approach has met with only limited success. On reassessment, it is felt that Norton needs help in dealing with his feelings about himself before he will be able to make substantial progress in other areas.

Placement for Norton the following year posed a big problem. The Title VI-A class had provided an appropriate, intensive remedial program. Yet Norton's attitudes were probably not being moved toward more positive adjustment despite

everyone's best efforts. The staff was aware that Norton's self-esteem may have been lowered by his placement with obviously "different" children. After two years of failure in a regular class, this class — much as it was needed — may have overloaded an already badly taxed ego.

In September, 1970, Norton was returned to his home school which fortunately had a Specific Learning Disabilities class filled with boys as tall and mature as Norton. He made an excellent adjustment. In the spring of 1970, at age 9-10, Norton was reported to be reading on an upper second grade level and working on a third grade level in math. He participated freely in all school activities and was especially interested in baseball and basketball. Oral language was essentially normal-sounding.

In summary, Norton's self-concept remained poor throughout his stay in the language class. He was unable to accept his inabilities and work toward compensating for them. Mastering academic skills was thus a long and painful process for him. The most positive contribution the language class placement made to Norton's progress was the development of the oral language and visual and auditory skills he needed in order to progress in reading.



IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
& VISUAL MOTOR

VI
GROSS
MOTOR SCORES

VII
TOTAL
SCORES

VIII
ADDITIONAL
MEASURES



ML⁵R (Templin)

Mean length of the five longest responses of 50

11.2 words (6 yr. level)

13.5 words (7 yr level)

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
8-8	6%	24%	70%	
9-0	10%	8%	6%	76%

Word Recognition Scores

age	pre-primer	primer	high 1st	low 2nd
8-8	88%	68%	36%	24%
9-0	96%	84%	52%	24%

Northwestern Syntax Screening Test

age Receptive score: 24

9-0 Expressive score: 34

8 yr-11 mo

Age at times of testing

Not all tests given at each interval

8 yr-0 mo

Norton

PATSY

June, 1969
age 7-1

Patsy: *This woman and a woman standing on this.*

May, 1970
age 8-0

Patsy (naming pictures):
(butterfly) *fluterply*
(slip) *lips*
(sled) *leds*
(nose) *zno*

April, 1971
age 8-11

Teacher-therapist: *But if you don't put your name on the egg before you dye it, how will we know which one is yours?*

Patsy: *If all the other kids have their names on, we'll know the plain one is mine!*

Patsy entered the Title VI-A class in the summer between the first and second years of the project. A school psychologist had evaluated her in April near the end of her first year in first grade. The psychologist reported:

Patsy is a six-year, ten-month-old first grader who was referred to Pupil Services because she is performing far below first grade level. Difficulties in reasoning and in communicating her thoughts are particularly noted by the classroom teacher. A report from the speech therapist dated September, 1968, notes 'unintelligible' speech.

Patsy is a fair, blond, very thin youngster who looks pale and possibly undernourished. She has a number of sores around her mouth.

She was very quiet and well-behaved in the testing situation. Her speech development is very delayed, and it is frequently impossible to understand her responses. She was able to correctly identify colors and could count and write numbers in order through five. She was not able to say, or write, any letters of the alphabet. When asked her

age, she put up six fingers and said 'four.' She said she has a sister and a brother. Her mother 'cleans up at the hospital.' She did not know what her father did. . . .

Test scores indicate that Patsy is retarded in her ability to function with verbal materials and concepts. Extreme experiential and language deprivation may account for this retardation although medical reasons should be explored by a complete physical examination. However, on non-verbal tasks, Patsy is able to function within the average range for her age. She does best on concrete, well structured tasks such as were afforded by the Object Assembly (puzzles) and Coding (matching a sign and symbol) subtests of the WISC. Her drawing of a person was within the average range expectancy for her age as was her perceptual-motor ability, as evidenced by her good reproductions of the Bender figures. The latter suggests that there is not likely to be a physical basis for her poor verbal skills. . . .

The Title VI-A psychologist's summary of her reevaluation when Patsy was 8-0 in May, 1970, follows:

This evaluation was made to assess progress after Patsy attended an experimental/demonstration class for children with language disabilities for ten months. She earned scores on the WISC as much as ten points higher for verbal, performance, and full scale. Now all scores but the verbal scale are within the average range. The verbal score has improved to the point where it is in the slow-learner range.

Speech proficiency and intelligibility have improved although Patsy still has many articulation errors and speech is not always intelligible. Syntax has improved in structured settings, but there is inconsistent carry-over into spontaneous conversation. Auditory memory remains at approximately the same level as last year and is substantially below age level. Auditory discrimination ability is also a problem area. Deficiencies shown by performance on the ITPA were all in the auditory-vocal channel, with the verbal expression subtest the only verbal score which

showed a significant gain. Auditory evaluation indicated adequate hearing acuity for the development of speech and language.

Scores in the visual area were again superior to those in the auditory area on the ITPA and also showed the greatest growth. Visual scores were within normal limits this year. All scores on the Frostig test showed an increase of one and one-half years or more except the eye-motor subtest (six months increase). Performance on the Southern California Figure-Ground Test also showed substantial improvement (from 1.9 standard deviations below the mean to 2.0 standard deviations above the mean). Gross motor performance is now within a half year of age level. Fine motor skills are somewhat awkward and slow.

Academic progress has been slow. Play patterns are still somewhat immature but show growth. The extreme shyness which was seen last year at the time of evaluation is no longer present. Patsy is now very able to join in the give and take in class.

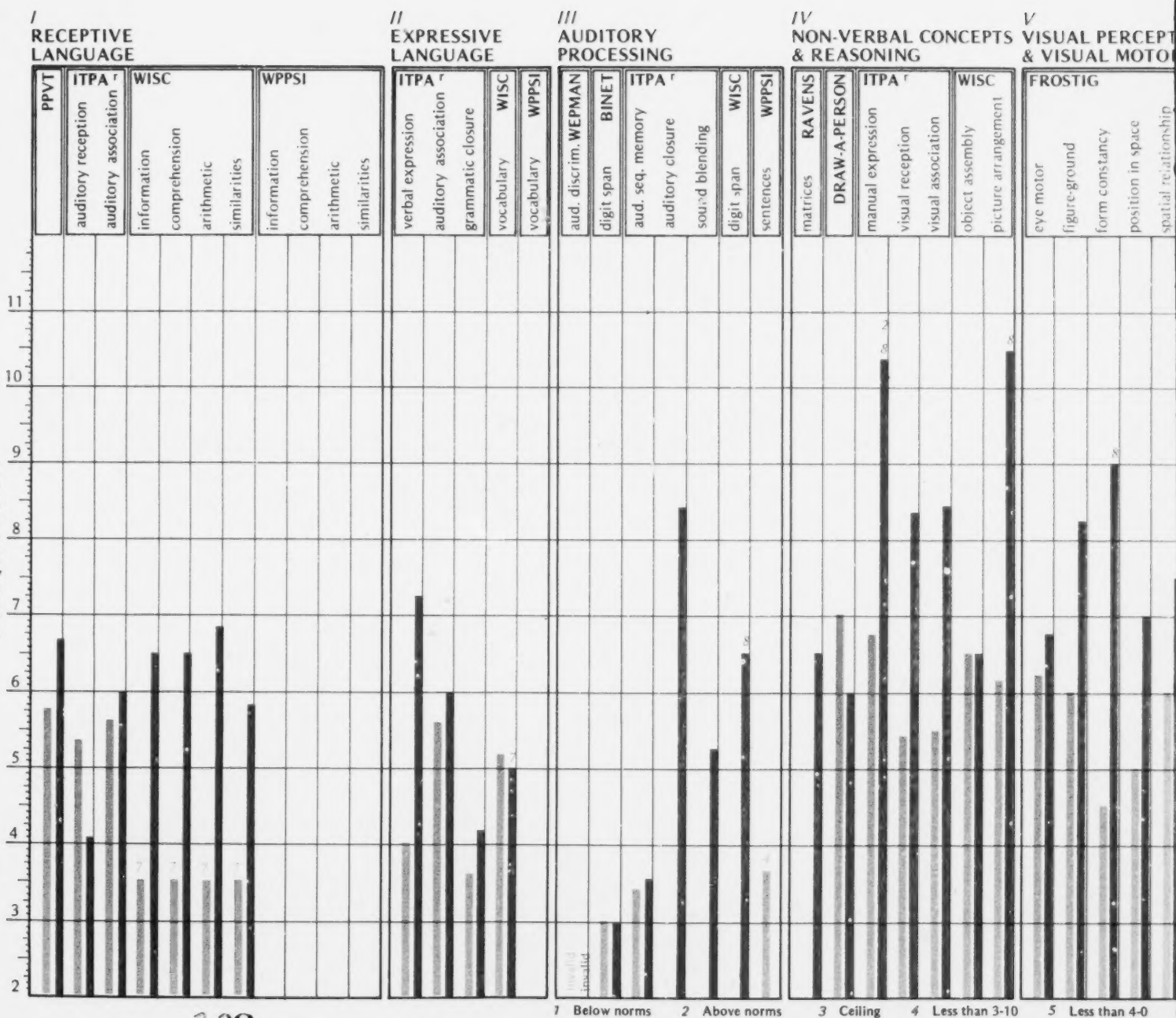
It is felt that Patsy has benefited from her attendance in the language class, but she still has many problems which continue to need special assistance. It is therefore recommended that she remain in the class next year.

Patsy continued in the special language class during the 1970-71 school year. There was little further improvement in comprehension or expression until January when she exhibited a sudden spurt in concept development. Patsy was working in the Sullivan Programmed Readers with good progress and had math in a regular second grade. In this large classroom setting, she appeared to have made a good adjustment. Her comprehension of the math content was very good. She followed the discussion and asked questions appropriately.

In the language class, Patsy changed from a listless, blank-looking girl to an animated person operating on a much higher level than had been anticipated. Her case represented not only a triumph over disability but over the low expectations for her on

the basis of her environment. On a later video tape, it was interesting to note Patsy's eye-contact, her bodily alertness, and her hand waving in eagerness to answer a question and to compare that performance with her averted eyes, slumped posture, and passive withdrawal shown on an earlier tape.

Plans are to continue Patsy in the language class for the 1971-72 school year. Her alertness, verbal fluency, and reasoning abilities are beyond what could have been predicted. If her present rate of improvement is maintained, her return to a regular class can be expected.



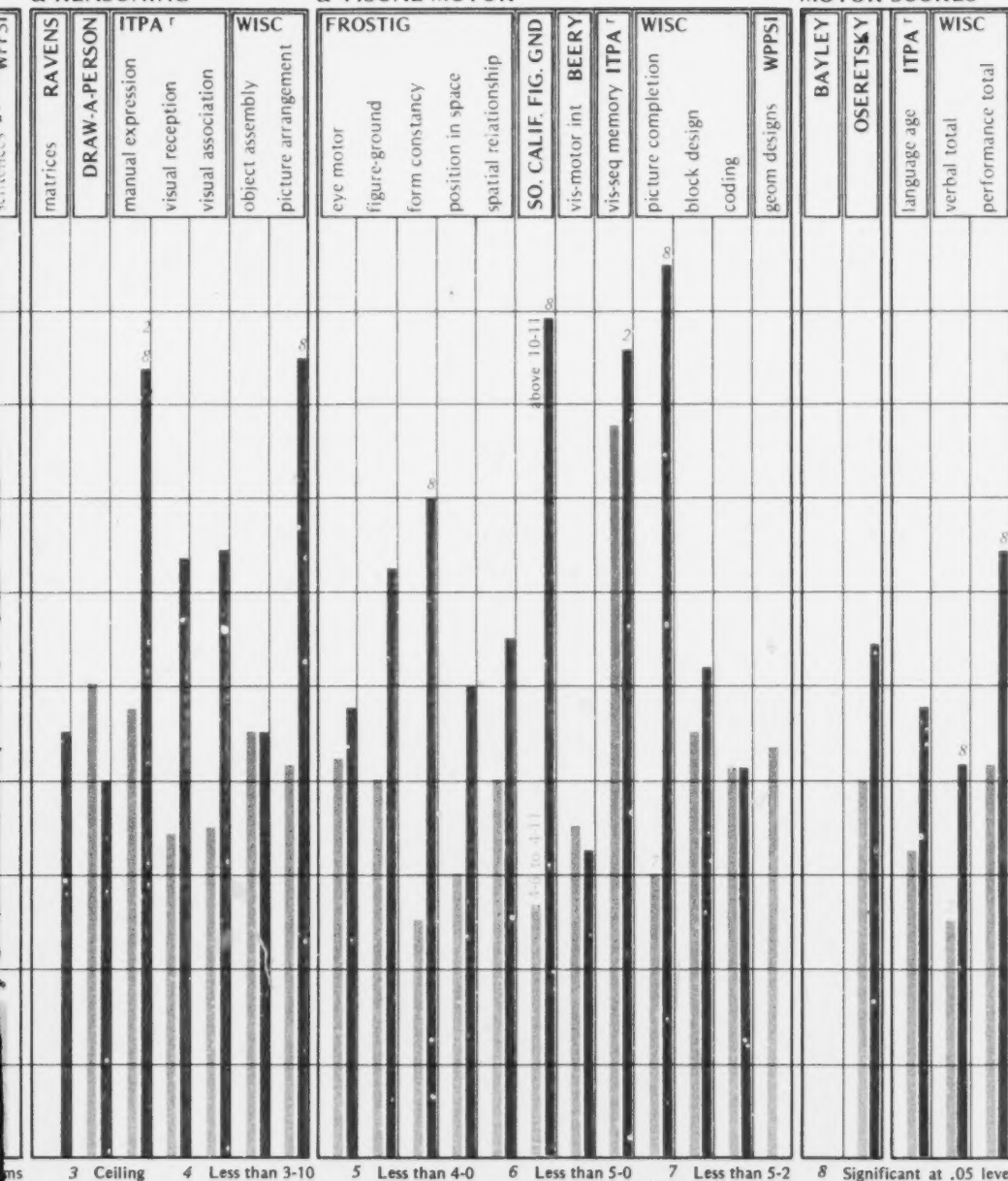
IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
& VISUAL MOTOR

VI
GROSS
MOTOR SCORES

VII
TOTAL
SCORES

VIII
ADDITIONAL
MEASURES



ML⁵R (Templin)

Mean length of the five longest responses of 50

11.7 words (6 yr level)

12.0 words (6 yr level)

Developmental Sentence Types (Lee)

age	single words	two-word combinations	constructions	sentences
7-5	15%	8%	31%	46%
	6%	15%	13%	65%

Word Recognition Scores

age	pre-primer	primer	high 1st	low 2nd
7-7	12%	4%	0	0
	32%	8%	0	0

Northwestern Syntax Screening Test

age Receptive score: 30
Expressive score: 18 (percentiles too old)

8 yr-0 mo

7 yr-1 mo

Age at times of testing

Not all tests given at each interval

Patsy

ROBBIE

- April, 1969
age 7-11 Teacher-therapist (showing picture of shoes): *What do people do with these?*
Robbie: *People wear them on.*
- May, 1970
age 9-0 Teacher-therapist: *Did the firemen find the right address after that?*
Robbie: *I think that they did 'cause my mother said they went somewhere else with the siren on.*

Robbie's academic difficulties in second grade had come to the attention of the staff of Project FOCUS, another federally funded effort (Title III) which had been developing diagnostic-prescriptive teaching techniques in four Montgomery County schools. Although the FOCUS team in Robbie's school had done an excellent job of diagnosing his problems and then providing appropriate remedial help, they were concerned that all these efforts were still not meeting Robbie's needs. He was referred to the Title VI-A project and given the Inventory of Language Processes at age 7-11 in April, 1969. The FOCUS staff's concerns were confirmed as indicated by the psychologist's report.

Robbie was referred by the FOCUS staff because of academic difficulties. He reads on a preprimer level. Although his printing was acceptable, he could not remember the letters in his name though he was able to recognize his name when it was correctly printed for him. He has not developed definite hand preference. Robbie was spontaneous both in behavior and conversation. He is an exceptionally aware, alert youngster, who quickly visually absorbs and structures his environment.

There appears to be a wide discrepancy between Robbie's visual abilities (all of which are well above average with the exception of visual memory) and language skills. His speech is intelligible though minor misarticulations are in evidence. More serious, however, are syntactical and grammatical errors. Also in evidence are word retrieval

difficulties. When labeling pictures, Robbie often responded with an imprecise synonym for the objects shown him. For example, he said *jacket* for *sweater*, *dress* for *coat*, and *basketball helmet* for *football helmet*. Though he could identify plurals in isolation, he could not identify them in complex sentences. . . .

Robbie entered the class in June, 1969, at the beginning of a five-week summer session which the children attended half days. He continued in the class the following September and stayed through that school year until June, 1970. The psychologist's summary, written in May, 1970, when he was 9-0 stated:

This evaluation was made to assess progress after Robbie had attended an experimental/demonstration class for children with language disabilities for ten months. He has maintained good performance in some areas but has made little progress in others. Verbal IQ scores continue to be within the average range except for subscores involving auditory memory. Performance scores on the WISC have either demonstrated good progress or are at the same raw score level as last year. Raw scores which were above average last year are at the high average level this year.

Auditory skills as measured by the ITPA (memory in particular) continue to be lower than visual skills. In practice, grammar and expressive skills have shown improvement. Articulation has improved, but speech is often only moderately intelligible because long words are telescoped and word endings are often omitted. Tongue mobility has improved and is not a problem. Voice quality is somewhat hoarse. The audiological evaluation again shows normal acuity for speech and language acquisition.

Visual skills as measured by the ITPA continue to be at the average level or better. Most visual-perceptual skills as measured by Frostig again are within normal limits. Two exceptions were the figure-ground task and the eye-motor task which were not performed as well. Performance on the Ravens, which involves intellectual as well as visual skills but no motor response, was above average. In general, visual-motor performance is lower than other

visual skills. Laterality pattern is still mixed. The left hand was preferred for most tasks, but the right hand was sometimes more accurate. Simultaneous movement involving two actions was difficult as measured by motor tasks on the Oseretsky. Robbie is still showing a few reversals in writing.

He is achieving normally in a third level regular math class. Progress in reading has been better since introduction of the "organic" approach. Although this sight approach is the primary teaching method, skills are reinforced with phonic and kinesthetic activities.

Robbie's understanding of the material presented in math and science classes and his level of discussion and inquiry represent more advanced reasoning and abstraction than others in the class. It is felt that he is surpassing the others and that perhaps he is ready for a different placement. The stimulation of a regular class would be desirable, but it should be carefully chosen and support should be given by the language resource specialist.

In September, 1970, Robbie was placed in a regular fourth grade, where again he had the advantage of FOCUS personnel. His severe reading problem still made achievement difficult. The Title VI-A language resource specialist assisted both the teacher and the FOCUS staff in their techniques with Robbie, especially at the beginning of the year. Progress was painfully slow at first, but by spring Robbie seemed to have reached more solid ground. His teacher noted that he was using simple sentences adequately but made mistakes when trying to express more complex thoughts. Prognosis for continued progress compatible with his intelligence is good.

The greatest benefit of the language class experience for Robbie was that he was freed from the necessity of covering up his problems and thus developed an easier, more relaxed personality. He could readily admit that an assigned task was going to be difficult for him and still pursue it. He had the respect of all the other children in the class. Although he joined in all classroom activities, his manner was always somewhat reserved.

Perhaps the unusually great discrepancy between his intellectual level and his language skills made it hard for him to feel he "belonged" in the class. Even the staff members who worked with Robbie and knew about his abilities and disabilities were amazed by his profound comprehension of concepts presented and his great difficulty expressing what he understood.



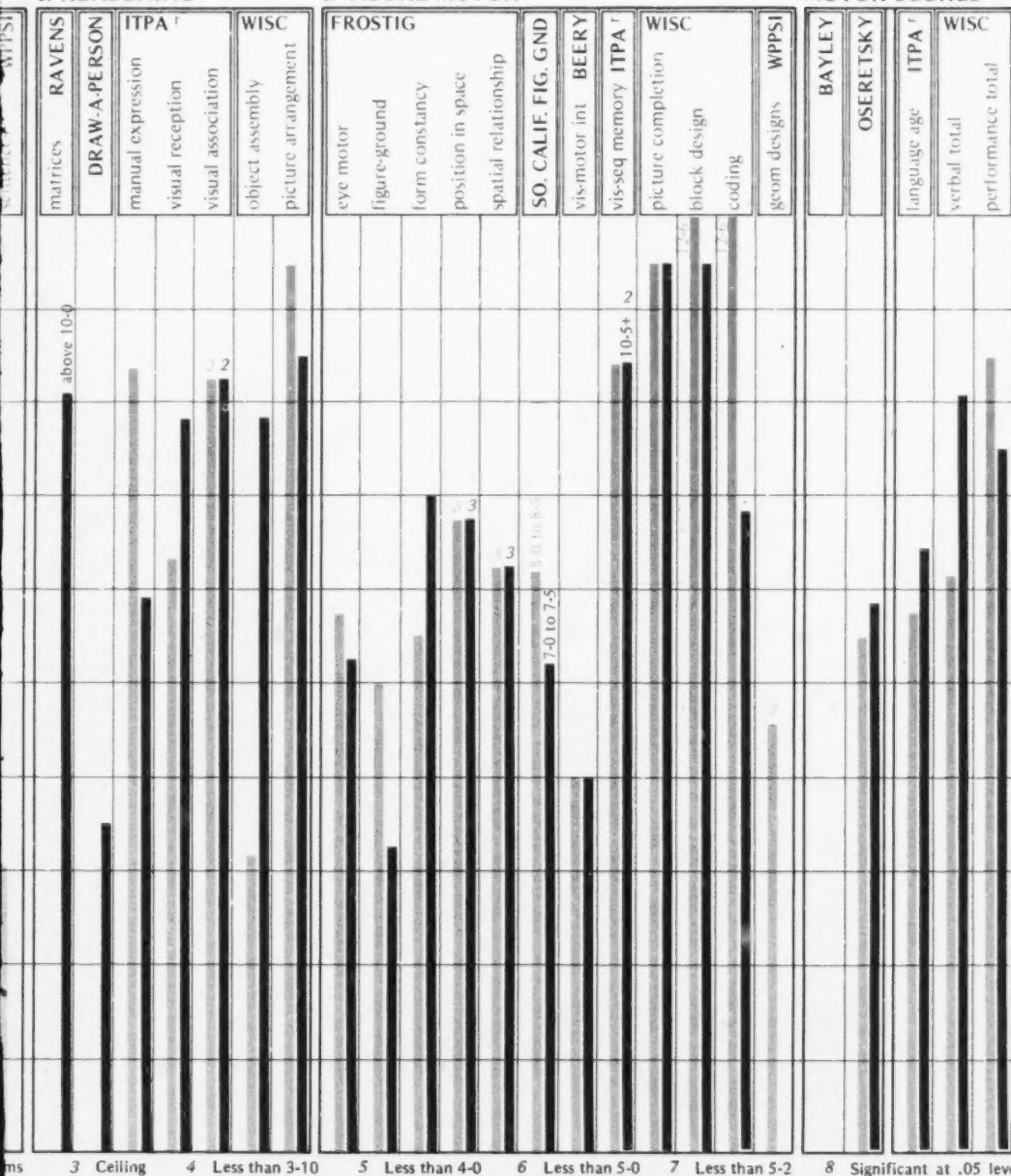
IV
NON-VERBAL CONCEPTS
& REASONING

V
VISUAL PERCEPTION
& VISUAL MOTOR

VI
GROSS MOTOR
SCORES

VII
TOTAL
SCORES

VIII
ADDITIONAL
MEASURES



ML⁵R (Templin)

Mean length of the five longest responses of 50

13.2 words

15.8 words

Developmental Sentence Types (Lee)

age	single words	two word combinations	constructions	sentences
	2%	9%	15%	74%
8-11	5%	3%	5%	87%

Word Recognition Scores

age	pre-primer	primer	high 1st	low 2nd
8-6	28%	4%	0	0
	56%	24%	16%	16%

Northwestern Syntax Screening Test

age

Receptive score: 31

Expressive score: 30

9 yr-0 mo

Age at times of testing

Not all tests given at each interval

8 yr-0 mo

Robbie

Robbie

Impact on the School System

The Title VI-A project started with the training of one speech therapist to serve as a teacher-therapist for six language-impaired children. After three years, it had allowed six speech therapists to be trained as teacher-therapists and had afforded services to thirty-five children for at least one year in a special language class. More than seventy-eight professional staff including regular and special teachers, reading specialists, speech therapists, and others were given inservice training in the field of language disabilities. In addition, approximately eighty-five children who were referred to the project were evaluated and their teachers, therapists and/or parents given specific information about their functioning and ways to help them.

About 200 visitors observed the demonstration class in Meadow Hall School. Approximately 300 people viewed one or more of the video tapes made of the class or of a diagnostic session. The tapes were shown within Montgomery County to all the speech and hearing therapists, many special education teachers, workshop participants, and staffs of some private clinics and schools. Staffs in some other counties in Maryland and students with Special Education majors at the University of Maryland also viewed the tapes. The project was the subject of a presentation at the Maryland Speech and Hearing Association convention in April, 1971. (It was also to have been presented to the New York Speech Association convention which was snowed out in February, 1971.) The Easter Seal Treatment Center started a similar language class for preschoolers in September, 1970. The nearby community of Arlington, Virginia, received permission to pilot a similar program in its school system with Title VI funds.

This relatively small project brought about a growing awareness of language disability as a kind of handicapping condition which requires specialized remedial procedures. Such awareness is permeating the Montgomery County public school system. Principals, pupil personnel workers, psychologists, speech and hearing therapists, and special and regular classroom teachers are among those who are becoming aware of children who may have language disabilities and are referring them for evaluation.

As mentioned in Chapter One, reliable incidence figures for severely language-disabled children in a school population are not available. Indications are that it is a relatively low-incidence disability, perhaps comparable to profound deafness or cerebral palsy in size of population. A much larger population undoubtedly suffers from moderate to mild language disorders which are handicapping to some extent. Chances for remediation of these less severe problems improve as more and more school personnel become aware of how language disabilities are manifested and how to deal with them.

In each of the three years of the project, the Montgomery County staff refined evaluation and selection techniques for placement of language class students. A decision to place a child in a special language class is a serious one to weigh. There is no point in such a placement unless it has a good chance of making a significant difference for the student. Many questions need to be asked first. Is the child so handicapped that he cannot learn in a regular classroom with some additional help from a therapist or a prescriptive teacher? Is the prognosis for his improvement in a special language class good? Is there a trained person available to teach the class, one who has the knowledge, personality, drive, and self-control to make it work? Or will children be occupied with "busy work" and kept in a "language" class year after year, not really progressing much? Will constant reevaluations and new recommendations be made to avoid stagnation and to ensure the best possible next step for each student? Is there an age or a point after which language class placement is just too late to do much good? Obviously, the younger the child, the "purer" his language disability (not complicated by marked problems in visual, motor, or behavioral areas); and the higher his intellectual potential, the better is the prognosis for remediation and return to regular education.

Children who have been on waiting lists for MCPS language class placement in the past two years have generally failed to progress in other settings. Furthermore, they evidence more behavioral difficulties as they become more frustrated. These conditions tend to be reversed when the language class placement is made.

The original joint special language class and those that followed

it have been of great value to most of the children they have served. Some very confused, frightened and in some cases belligerent children have become delightful people who can learn. The impact of the project on the local school system has been real because the need was real.

A modest growth in language classes is projected for Montgomery County Public Schools; five classes were operational in the 1971-1972 school year. Students definitely identified are on waiting lists. The staff wishes to move ahead with care to ensure high quality for the program.

The Montgomery County public school system is grateful for the Title VI-A funds and for the staff which used the money judiciously. Perhaps the information in this book will help another school system develop a meaningful program for its severely language-impaired students.

APPENDICES

APPENDIX A

Chronology of the Project

1967-1968	Discussion and planning sessions
Feb., 1968	Original Title VI-A proposal drafted
April, 1968	Refined Title VI-A proposal submitted to Maryland State Department of Education
June, 1968	Proposal approved by Maryland State Department of Education
Summer, 1968	Teacher-therapist sent to Northwestern University, Evanston, Illinois, for study in the Institute for Language Disorders
	Evaluation and selection of students
	Viewing room with one-way mirror installed for classroom observation
	Consultation regarding data collection with Dr. Michael Deem, Children's Hospital, Washington, D. C.
Sept. 2, 1968	Class started with five students: Jan, Phil, Skip, Timmy, and Wilbert
Sept. 10, 1968	First video tape made of the class
Nov., 1968	Melanie joined the class
Feb., 1969	Mid-year testing
	Second video tape filmed
March, 1969	Consultation with Miss Doris Johnson, Northwestern University

- June, 1969 End-of-year testing
- Third video tape made
- Jan and Phil dropped from class
- Classroom and viewing room air-conditioned
- June-July, 1969 Summer session
- Intern teacher-therapist joined the staff
- Four new students added (Danny, Norton, Patsy, and Robbie) making a total of eight
- Two two-week workshops held for fifteen professional participants with morning observations (in the viewing room) and afternoon lectures and discussions. More students identified and evaluated
- July-Aug., 1969 First three video tapes edited
- Aug., 1969 Consultation with Dr. Nancy Wood, University of Southern California
- Sept., 1969 Meadow Hall class of eight continued with original teacher-therapist and new intern teacher-therapist
- Second class started in another elementary school with eight more children. Summer intern assigned as teacher-therapist, and a new intern assigned to her. All had background as speech and hearing clinicians. Easter Seal Treatment Center services continued for the Meadow Hall class. New class used regular school services except for some special psychological services from the Title VI-A part-time psychologist.

Sept., 1969	Fourth video tape made of the class. Four newest students tested formally
Feb., 1970	Some mid-year testing Video tape made of a language evaluation Original teacher-therapist left on maternity leave; her intern assigned as teacher-therapist; intern from the second class filled vacancy. A new intern employed for second class
June, 1970	Final testing completed Final video tape made
Sept., 1970— June, 1971	Three classes for children with language disabilities staffed by personnel trained in the project and supported by the school system without federal funds Title VI-A supported an intern from another county in Maryland to spend the year learning the specialized techniques Title VI-A allowed employment of a half-time language resource specialist to follow up known students and evaluate new referrals Original teacher-therapist taught a two-semester in-service workshop to sixty professionals interested in language disabilities Draft of this book prepared
June, 1971— June, 1972	Continuation of project without benefit of federal funds; MCPS financial support for five classes; half-day in-service workshops of six-weeks duration

APPENDIX B

People Involved in the Title VI-A Project and Dates of Their Participation

(All are employees of Montgomery County Public Schools,
Maryland, unless otherwise noted.)

Mary Liz Andrejczak — part-time psychologist, September,
1969–June, 1970

William Balant — educational diagnostician; did academic
testing, January, 1969–June, 1970

Robert Bourdeaux — free lance artist, April 1971–September,
1971

Judy Boyd — speech and language clinician, Easter Seal
Treatment Center, Summer, 1969

Dorothy Bradley — supervisor, Clerical Services, June,
1971–September, 1971

Fred Brown — principal, Meadow Hall Elementary; school
where original class was housed, September, 1969–June, 1970

Miriam Cameron — editor, September, 1970–September, 1971

Donald Celaschi — supervisor, Special Education Placement,
June, 1968–June, 1970

Regina Cicci — instructor, University Hospital, Baltimore —
workshop consultant, Summer, 1969

William Coviello — supervisor for Title VI, Maryland State
Department of Education, June, 1968–June, 1970

Michael Deem — psychologist, Children's Hospital, Washington,
D. C. — consultant on data collection, August, 1968

Trudy Deitchman — occupational therapist, Easter Seal Treat-
ment Center, September, 1968–June, 1970; workshop consult-
ant, March, 1971

Lexa Dillon — intern teacher-therapist, Summer, 1969; teacher-therapist, second class, September, 1969–June, 1970

Nancy Dodson — principal, Forest Knolls Elementary; school where second class was housed, September, 1969–June, 1970

William Feddeman (deceased) — director, Department for the Planning and Development of Federal and State Programs, June, 1968–February, 1970

Fenny Finch — psychologist; workshop consultant, February, 1971

Vincent Foo — video tape technician, September, 1968–June, 1970

Brenda Foster — book manuscript typist, Clerical Services, June, 1971–September, 1971

Rosalyn Gitter — speech and language clinician, Easter Seal Treatment Center, September, 1969–June, 1970

Paul Hadlick — speech and hearing therapist; designed viewing room at Meadow Hall Elementary, Summer, 1968

John Henderson — supervisor, and staff, Print Shop, Spring, 1972

Marvel Hess — mathematics teacher-specialist; workshop consultant, April, 1971

Donald Hymes — director, Publication Services, September 1970–September 1971

Doris Johnson — assistant professor, Institute for Language Disorders, Northwestern University — consultant on project, March, 1969

Marcella Kelly — reading diagnostician; workshop consultant, Summer, 1969

Helen Kohut — assistant director (and later director), Department for the Planning and Development of Federal and State Programs, June, 1968—June, 1971

Lois Larson — pupil personnel worker, involved in original planning, 1967—1968

Katherine Lewis — intern teacher-therapist, second class, September, 1969—January, 1970; and for second year of original class, January, 1970—June, 1970

Harriett Liniger — speech and language clinician, Easter Seal Treatment Center, September, 1968—June, 1970

Joan Maynard — supervisor in Special Education for Speech and Hearing, Maryland State Department of Education, June, 1968—June, 1971

Ellen McCabe — speech and language clinician, Easter Seal Treatment Center, September, 1968—June, 1969

K. M. McManes — executive secretary, Easter Seal Treatment Center, June, 1968—June, 1970

William Melton — video tape technician, September, 1968—June, 1970

Joan Monaco — teacher-therapist, original class, June, 1968—January, 1970; workshop instructor: Summer, 1969; September, 1970—June, 1971; Summer, 1971; coauthor

Edna Monsees — associate director, Children's Hearing and Speech Center, Children's Hospital, Washington, D. C. — workshop consultant, Summer, 1969

Karen Navratil — intern teacher-therapist, second class, January, 1970—June, 1970

Thomas O'Toole — supervisor, Speech and Hearing Programs, June, 1968—September, 1969

Carol Perry — intern teacher-therapist, original class, September, 1969–January, 1970; teacher-therapist, same class, January, 1970–June, 1970

Craig Scott — supervisor, Department of Research; analyzed test data, March, 1971

Marilyn Semmes — audiologist, Easter Seal Treatment Center, September, 1968–June, 1970

Barbara Shapiro — language resource specialist, September, 1970–June, 1971

Patricia Shively — intern teacher-therapist from Prince George's County Public Schools, Maryland, September, 1970–June, 1971

Philip Stromowsky — director, Special Education, June, 1968–June, 1971

Consuela Talkington — classroom aide, original class, September, 1968–July, 1969

Sharon Vanderslice — part-time psychologist, September, 1968–July, 1969

Beverly Whitlock — chairman, Speech, Hearing and Language Department, Easter Seal Treatment Center, June, 1968–June, 1970

Virginia Whorf — part-time secretary, Easter Seal Treatment Center, September, 1968–June, 1970

Nancy Wood, professor, Department of Communicative Disorders, University of Southern California — consultant on project, August, 1969

Elinor Zaslow — teacher-specialist, Speech and Hearing Programs, June, 1968–June, 1971; coauthor

APPENDIX C

Observation Guide
October 21, 1968

CONFIDENTIAL

Language Characteristics of Children in the Joint Language Class

This material was prepared to aid your observations of the Joint Language class. A brief discussion of language will aid in understanding the terminology used here.

Language includes understanding the spoken word (*receptive oral language*), speaking (*expressive oral language*), reading (*receptive written language*), and writing (*expressive written language*). Any or all areas can be impaired. The children in this class will, in all probability, demonstrate written language problems; all now have impaired receptive and expressive oral language.

Oral language is comprised of three basic parts. Very simply they are:

1. *Phonological* — the sounds used in the English language (*p, b, etc.*)
2. *Semantic* — the meanings of words. Human language is symbolic. Words are used to stand for events and objects.
3. *Syntactic* — words are put together in strings to express meaning. There are rules governing how any language puts these strings together. The basic "string" is called a *kernel sentence*. It expresses a subject-verb-object relationship. The kernel sentence can be changed and elaborated to make *transformations* (questions, replacing parts with a pronoun, negative forms, etc.). The highest level of the syntactic aspect of language is the *morphophonemic* level which consists of the exceptions to the rules concerning

grasping the symbolic nature of language; she does not separate herself in time and person from situations being discussed.

SKIP: Skip also has problems forming kernel sentences. He uses speech in a very concrete manner. He has a severe articulatory problem involving vowels as well as consonants. He does not use gestures. He will repeat an utterance as many times as necessary until someone understands what he is saying. He does not often rephrase a statement nor does he use synonyms if his words are unintelligible. Perseveration in all modalities is evidenced. At a semantic level, he has difficulty assigning more than one meaning to a word. An apraxia, an inability to perform a motor act at will, has been questioned.

PHIL: Phil has a severely limited auditory memory span. He can remember only one or two auditory signals. His memory for events is far superior to his memory for words. He can name single objects and seems to understand connected speech. He has great difficulty making two-point discriminations. This is possibly connected with his short memory span. Phil uses words to name things. He does not use words to stand for events that have happened. In the performance area, he has a severe visual perceptual problem and visual-motor problems.

(Added November, 1968)

MELANIE: Melanie's primary language problems are at the syntactic level. Articles, auxiliary verbs, and prepositions are most often omitted in her sentences. Word-order is also often disturbed. Melanie demonstrates extreme distractibility when both visual and auditory stimuli are involved. Her speech is readily intelligible. Auditory memory span is short for both meaningful and nonmeaningful material. She uses few transformations. Melanie has some word-finding problems for both oral and written

pronunciation, e.g., we use *gave* as the past form of *to give* while the rule would dictate that we use *gived* as the past form.

All of the children in the class were chosen because their primary disability seems to be a language impairment. They vary in type and degree of involvement. They also vary in their performance abilities. All tend to use language in a very concrete way. They are unable to make higher level abstractions. Descriptions of the childrens' language problems follow:

WILBERT: Wilbert's primary language problems are at a semantic level; he has not made the associations between words and their nonverbal correlates. He often uses words that are irrelevant in the situation. His articulation is very good. He uses most transformations. He has many processing problems in handling auditory stimuli. His discrimination is poor; his auditory memory seems to be impaired. Wilbert is often dysnomic: he is unable to recall words at will. Many attention problems are evident.

TIMMY: Timmy's primary problem is at a syntactic level. He is unable to form kernel sentences and transformations. He is beginning to internalize some transformational structure but still makes elementary errors. He uses an elaborate system of gestures and seems to prefer this to using the words. His memory for nonrelated words is better than for grammatical structures. His auditory discrimination is very poor.

JAN: Jan does form kernel sentences and performs some transformations. She uses a very rapid rate of speech and intelligibility is quite poor. Her auditory span is also very short. She uses some gestures but relies primarily on speech to communicate. She frequently "teases," and it is often difficult to tell when she is inaccurately perceiving the situation and when she is playing. She does not appear to be

vocabulary. She also displays some fine motor incoordination, and drooling is evidenced when writing.

(Added September, 1969)

ROBBIE: Robbie has semantic and syntactic language problems. At the semantic level, he has trouble assigning more than one meaning to a word, forming concepts, and retrieving words at will. At the syntactic level, he omits function words and makes consistent errors using plurals and verb endings. He has many auditory processing problems. Robbie has had a great deal of difficulty learning to read.

DANNY: Danny's language problems are primarily at the semantic level. He has difficulty recalling words at will. One of his memory crutches is to learn items in a series and then go through the series to the items he wants to name.

PATSY: Patsy's primary problem is in comprehending auditory information. She has difficulty remembering new words and recalling words she knows. Syntactically, she uses kernel sentences but performs few transformations. Her auditory memory span is very short. Patsy has a severe articulation disorder.

NORTON: Norton's primary language problem is at the semantic level. He has difficulty understanding word meanings and in forming concepts. He has word-finding problems. His expressive language is deceptively good; he has only superficial understanding of most of what is said to him. Reading is very difficult and very slow.

It is assumed that this information will be handled in a professional and confidential manner.

APPENDIX D

Information on Later Classes

The Second Class (started September, 1969)

Student and Age at Placement	Prior Placement and Why Referred	Primary Language Disabilities	Tenure in Class
Boy 5-10	Kindergarten Poor social development; difficulty following directions	Poor comprehension at sentence level; difficulty integrating information from different channels; syntactic errors	1 year
Girl 6-9	Kindergarten Very poor social adjustment and lack of age-appropriate skills	Short auditory memory; poor receptive skills; very limited concept development; severe word-finding problem	2 years
Girl 6-7	Easter Seal Language Nursery Behavior control a serious problem	Poor auditory discrimination; very concrete receptive and expressive language; could not understand multiple meanings; extremely distracted by noises	2 years
Boy 6-1	Kindergarten Severe formulative and expressive problems	Syntactic problems involving word orders, subject-verb agreement, pronouns, articles, and verb forms; word-finding problem; poor conceptual development; poor auditory memory; essentially unintelligible speech	1 year
Girl 5-9	Kindergarten Depressed receptive and expressive language and auditory skills; irrelevant responses; disorganized behavior	Poor comprehension and expression of relationships and higher level concepts; some sequencing difficulties; poor auditory discrimination and memory	2 years

Major Gains and Observations	Sequel
Improved sequential skills; increased verbal output; gained nearly three years on ITPA auditory reception subtest and nearly four on verbal expression subtest in nine months; performance in all areas reflected impressive gains	Entered regular first grade in home school
Cooperative behavior developed; increasing independence; much improved auditory discrimination; ITPA verbal expression increased twenty-two months in nine months	Will enter class for mildly retarded or a specific language disabilities class
Much improved behavior and social skills; auditory skills so improved that phonics are utilized in reading	Will enter regular second grade with specialist's help in reading and math
Improved receptive and expressive language; sequence problems essentially overcome; conceptual development and abstract processing no longer a problem; ITPA verbal expression subtest gain in nine months was three years, two months	Moved
In first nine months, scored ITPA gains of three years on auditory memory, over two years on auditory closure, and over five years on verbal expression; classroom performance corroborated growth in all language areas; still occasionally irrelevant but can be clued in; still needs structure to organize for learning	Will enter regular ungraded primary class

Second Class

Student and Age at Placement	Prior Placement and Why Referred	Primary Language Disabilities	Tenure in Class
Girl 6-1	Kindergarten Communicated primarily with gestures and single words; withdrawn behavior; nonfluent speech	Very poor comprehension, even of single words; oral and gestural expressive skills both about two years below age level; severe word-finding problem; moderate auditory memory and severe auditory discrimination and closure problems	1½ years
Girl 7-8 (Replaced student who moved.)	Regular Second Grade Comprehension and auditory memory problems seriously interfered with academic progress	Auditory memory discrimination and blending; use of prepositions and higher level abstracting and generalizing all impaired; poor vocabulary	6 months
Boy 8-1 (Replaced student who moved.)	Specific Learning Disabilities Class Language problems too severe to cope with in the SLD class	Expressive language more impaired than receptive; very severe auditory processing and sequencing problems; unintelligible speech; used single words and short phrases only; very infantile grammar	7 months
Girl 7-1	Class for Children with Severe Auditory Handicaps Did not respond like a child with significant hearing impairment; audiograms equivocal	Difficulties in auditory processing, memory, and sequencing; problems in associating meaning with what she heard; auditory discrimination skills very inconsistent; some were good; often relied on lip reading	8 months
Girl 6-6	Easter Seal Language Nursery Severe auditory processing disabilities	Expressive language seriously depressed; receptive language only mildly affected; moderate word-finding difficulties; visual-motor areas also severely depressed; speech only moderately intelligible	2 years

Major Gains and Observations	Sequel
Better social adjustment; more spontaneous speech; much improved auditory discrimination; comprehension of both single words and connected language significantly improved; verbal and gestural expressive skills showed most marked improvement with two-year gains in nine months; developing sight vocabulary; still nonfluent; still had word-finding problems.	Moved
Auditory discrimination and comprehension of prepositional forms improved; developed social skills; much improved conceptual level	Will continue in language class but with considerable regular class integration
Increased sentence length and intelligibility; developing more transformations, though slowly; auditory discrimination improved; auditory memory ability still low	Will continue in language class
Increased verbal output with more transformations in use; progress not spectacular; auditory behavior still erratic, though discrimination improved	Moved
Progress not remarkable during first year; in second year verbal expression greatly improved with more transformations used and readily intelligible speech; reading solidly at mid-first grade level	Will continue in language class with regular class integration for reading and math

Second Class

Student and Age at Placement	Prior Placement and Why Referred	Primary Language Disabilities	Tenure in Class
Boy 7-5 (Replaced student who moved.)	Specific Learning Disabilities Class Severe language and behavior problems with normal potential evidenced	Phonological, semantic, and syntactic areas all affected; difficulties in abstracting and generalizing; auditory memory impaired; word-finding problem; visual and conceptual areas also affected	1 year
Boy 7-8 (Replaced student who moved.)	Regular Second Grade Severe comprehension problems and many inappropriate and bizarre responses	Impaired comprehension of both individual words and connected language especially question forms with unusual gaps; poor auditory memory; could "read" but without comprehension; word-finding problem interfered with expression, even though syntax was only mildly impaired; categorization difficulties	4 months

The Third Class (started September, 1970)

Girl 6-7	Easter Seal Language Group Expressive language problems more severe than receptive	Some difficulty with auditory comprehension at the sentence level; lowered auditory memory ability for complex directions; grammatical errors; oral-motor difficulties affecting articulation; word-finding difficulties	1 year
Boy 6-3	Easter Seal Language Group Poor social development; little verbal output	Limited expressive language; grammatic and syntactic errors; poor auditory memory and discrimination; essentially unintelligible speech	1 year
Girl 6-6	Easter Seal Language Group Poor processing skills	Poor comprehension of abstract material; concept development below age level; sequencing difficulties; poor auditory processing skills	1 year

Major Gains and Observations	Sequel
Much improved behavior and attention; vocabulary and concept level raised; using more transformations; able to use auditory skills in reading; auditory and visual memory skills still poor	Will continue in language class
Improved rate of vocabulary development and retention; comprehension of factual material improved although interpretation still poor in both oral and written material; categorizing improved; better comprehension of prepositional forms; monitoring of own output still poor	Will continue in language class
Increased speed and intelligibility of oral responses; few grammatical errors persist; improved auditory memory function	Will enter regular second grade
Significant increase in verbal output with improved transformations; good social relationships with teachers and peers; now tests and performs above age level in auditory memory; is using auditory channel (phonics) as a word attack skill; now intelligible most of the time.	Will enter regular second grade
Some improvement in comprehension and expression of abstract material; auditory discrimination and memory improved significantly; increased speed of auditory processing and verbal response	Will continue in language class

Third Class

Student and Age at Placement	Prior Placement and Why Referred	Primary Language Disabilities	Tenure in Class
Boy 6-2	Easter Seal Language Group Severe expressive language disability; hyperactive	Grammatical errors in subject-verb agreement, pronouns, verb tense and plurals; word-finding problems; poor auditory memory, discrimination, and sequencing	1 year
Boy 6-4	Easter Seal Language Group Highly disorganized linguistically and socially	Difficulty making new associations; concrete behavior; poor auditory discrimination and memory skills; difficulty organizing verbal material receptively and expressively	1 year
Boy 6-1	Easter Seal Language Group Severe expressive language disability; hyperactive	Severe auditory processing and word-finding problems; verbal expression at the kernel sentence level	1 year
Boy 7-11	Specific Learning Disabilities Class Poor comprehension of newly presented information	Difficulties comprehending abstract material; lowered formulative skills; auditory and visual perceptual skills below age level	7 months
Girl 6-3	Easter Seal Language Group Expressive language problems; hyperactive	Grammatical errors including pronouns, verb inflection, conjunctions; word-finding difficulties; problems structuring verbal output	1 year
Girl 6-3	Easter Seal Language Group Poor expressive language skills	Auditory discrimination and memory problems; grammatical and syntactic errors; sentences four to five words in length; some difficulty comprehending abstract material	1 year

Major Gains and Observations	Sequel
Improved social skills; greater use of transformations and grammatical forms; sequencing problems essentially overcome; auditory discrimination improved	Will continue in language class
Improved functional auditory memory and discrimination; some improvement in ability to deal with more abstract material; demonstrates better organized and independent performance	Will continue in language class
Increased verbal output with greater use of transformations and grammatical forms; improved auditory discrimination and sequencing function	Will continue in language class
Greater verbal output with evidence of improved associations and concept development; auditory memory and discrimination improved so that phonics are being used as a word attack skill; better social skills	Will continue in language class
Few grammatical errors persist; greater facility in structuring responses	Will enter regular ungraded primary class
Some improvement in auditory memory and discrimination; greater verbal output with more transformations; improved comprehension of abstract material	Will continue in language class

APPENDIX E

Hindsight

Like any undertaking, the Title VI-A project described in this book could have been improved. Its success in teaching handicapped children and training staff might have been further enhanced if some things had been different. To assist those who may wish to plan classes for language-disabled children, we offer the following hindsight:

1. A full-time supervisor or coordinator of the Title VI-A project was needed. Numerous facets of even so small a project were demanding, including: writing proposals, preparing budgets, selecting staff, organizing and planning program, arranging for visitors and consultants, coordinating selection of students, conferring with staff, explaining and discussing the project with various groups, assisting with in-service workshop syllabi, and reporting and accounting for expenditures. All supervision was done on borrowed or squeezed time by people who had other full-time responsibilities.
2. A unified training program for all personnel involved in the project before it actually began would have been valuable. Commonality of terminology, approaches, and goals could have been more easily developed.
3. Significantly retarded children should not have been included in this particular project. The experiment did prove to the staff's satisfaction that great gains could be made by retarded children in the special language classroom, but their needs are different. Teachers of retarded children should be trained to deal with their students' language disabilities, or classes should be provided for retarded children who have greater deficits in language than they have in other areas. Combining the retarded and the average or bright students who have language impairments, as was done in the first year's class, is unwise.
4. More positive inclusion of parents would have been desirable.

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274

INVENTORY OF LANGUAGE PROCESSES

Designed and Developed by
Joan L. Monaco* and Lexa D. Dillon

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Inventory of Language Processes, continued

8. Identify a situation depicted in pictures from a verbal description.
9. Tell the child a story, and ask questions about content.
10. How did the child appear to comprehend conversational speech? Did particular parts of speech appear to give him trouble? (e.g., *Wh*-question forms.) Can a pattern of errors be detected?

B. Expressive

1. Name nouns, verbs, adjectives (pictures)

_____	_____	_____
_____	_____	_____
_____	_____	_____

3

Inventory of Language Processes, continued

3. Structured Babbling

ba _____	mo _____
ba, bo _____	mo, mae _____
ba, bu, bee _____	mo, mae, mu _____
ba, ba, bec, bu _____	mo, mae, mu, mah _____

4. Unstructured Babbling (Nonsense syllables)

ba-to _____
ki-se _____
me-fo-bz _____
si-le-tu _____
lo-mi-sa-du _____
ge-po-na-fu-shi _____

5. Unrelated words

sun-foot _____; day-trap _____; chair-dog-apple _____;
shirt-car-face-stone _____; tree-store-box-coat _____;
run-lamp-dime-fox-name _____; stamp-bowl-train-song-hat _____

7

Inventory of Language Processes, continued

2. Rapid naming of unrelated pictures. ("Tell me these as fast as you can.") Number of errors: _____
Type of errors: Associated words _____
Latent responses _____
No response _____
3. "Name as many things as you can." Listed only things in sight _____ Related words _____
Random words _____ Others _____
4. Describe a picture.
a) Picture present
b) Picture removed

5. Ability to relate events accurately and sequentially:

"First you got up in the morning, then you" . . . or do or make something with the child and have him tell what you did.

Prompting needed?

Sequential order?

Related to topic?

Single words, phrases, or connected sentences used?

4

Inventory of Language Processes, continued

6. Related words

arm-hand _____; dress-socks _____; pants-shirt-tie _____; foot-shoe-sock _____; car-train-bus-plane _____; bed-chair-couch-table _____; penny-dime-nickel-quarter-dollar _____; paper-pencil-erayon-scissors-rulers _____.

7. Sentences

Boys can run _____. We sing songs _____. The toys are broken _____. Some people are late _____. Tom and Bill were lost _____. Carl didn't have a bike _____. His father was making a table _____. What did you buy at the store? _____

8. Following Commands

a) In space (Begin with three commands. If unable to perform, give a two-part command; if unable to perform, a one-part command.)

Examples:

- (1) Give me the book, then go to the door, then touch the floor.
- (2) Pick up the pencil, then clap your hands.
- (3) Go to the door.

8

INVENTORY OF LANGUAGE PROCESSES

Designed and Developed by
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NAME _____ DATE OF BIRTH _____
DATE _____ SCHOOL _____
EVALUATOR _____ REFERRED BY _____

I. Semantic Level

A. Receptive

1. "Show me" - single nouns and verbs (pictures)
(or Peabody Picture Vocabulary Test score)

Samples - _____

2. "Show me" - Part of object ("one that has
_____") Use three items, at least one of
which is a real object in the room.

Samples - _____

3. "Show me" - Function ("one that is used
to _____")

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Inventory of Language Processes, continued

6. "Tell as many things about a _____ as you
can."
7. Read child a brief story such as a *Weekly Reader*
article at his grade level. Ask child to retell the
story. Note inclusion of major ideas, sequences,
and sentence structure.
8. General description of child's ability to formu-
late and sequence ideas, etc. Use of causal,
temporal, categorical relationships; concrete vs.
abstract; etc.

II. Syntactic Level

- A. "Show me ..." Use pictures representing parts of
speech, e.g., "He is pulling the wagon." Or use the
Northwestern Syntax Screening Test.

- B. Is this right?

Me want it. _____

It is the book. _____

276

Inventory of Language Processes, continued

4. "Show me" (Category - animal, food, furniture,
etc.)

5. Expand a category ("Find a knob. Find another
one. Find another one.")

6. "Show me something" - (Adjectives) use pic-
tures or objects.

big _____ little _____ biggest _____ smallest _____ happy _____

sad _____ surprised _____ sweet _____

7. Prepositions

If child is able to follow single commands, have
him place objects in spatial relationships to
illustrate the following:

on _____ next to _____

in _____ behind _____

under _____ over _____

If the child is unable to perform in this manner,
set up the situations and have the child point to
the objects illustrating the relationships ("Show
me 'The spoon is behind the cup.'").

Inventory of Language Processes, continued

That one is mine. _____

The boy running. _____

The girls are baking a cake. _____

The dog are barking. _____

The toy is broken not. _____

- C. Secure samples of spontaneous speech. Note use of
kernel sentences, transformations, regularity of
errors, verb tense, plurals, order, sequencing, etc.

III. Auditory Skills

A. Memory

1. Identifies given sound when hears it repeated.
How many sounds? _____ "Listen, I will say a
sound, k. Tell me when you hear k again.
Ready?"

k - s, k

p - m, t, p

f - d, z, h, f

2. Digits (two per second)

6-1 _____; 4-0 _____; 8-3-6 _____; 9-2-0 _____; 5-2-8-1 _____;

0-6-9-1 _____; 2-9-3-8-1 _____; 3-1-9-6-4 _____

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1

Inventory of Language Processes, continued

6. "Tell as many things about a _____ as you can."
7. Read child a brief story such as a *Weekly Reader* article at his grade level. Ask child to retell the story. Note inclusion of major ideas, sequences, and sentence structure.
8. General description of child's ability to formulate and sequence ideas, etc. Use of causal, temporal, categorical relationships; concrete vs. abstract; etc.

II. Syntactic Level

- A. "Show me..." Use pictures representing parts of speech, e.g., "He is pulling the wagon." Or use the Northwestern Syntax Screening Test.

_____	_____
_____	_____
_____	_____
_____	_____

B. Is this right?

Me want it. _____

It is she book. _____

5

Inventory of Language Processes, continued

b) On paper

- (1) Put an X under the boy.
- (2) Draw a circle around the baby.
- (3) Draw a line over the tree.

B. Discrimination

1. Assumption is made that the child is able to discriminate both fine and gross differences if he is successful with babbling. If there is an indication of difficulty in this area, continue with sections (a) and (b).

a) Fine differences - sounds: (same or different?)

f - p	sh - sh
t - k	r - w
s - th	ih - eh
g - d	l - l

b) Gross differences (if unable to perform discrimination of fine differences) (same or different?)

s - b	ay - ee
t - m	p - d
d - d	r - g
k - l	ch - ch

9

277

on _____ next to _____
in _____ behind _____
under _____ over _____

If the child is unable to perform in this manner, set up the situations and have the child point to the objects illustrating the relationships ("Show me 'The spoon is behind the cup.'").

2

Inventory of Language Processes, continued

That one is mine. _____
The boy naming. _____
The girls are baking a cake. _____
The dog are barking. _____
The toy is broken not. _____

- C. Secure samples of spontaneous speech. Note use of kernel sentences, transformations, regularity of errors, verb tense, plurals, order, sequencing, etc.

III. Auditory Skills

A. Memory

1. Identifies given sound when hears it repeated. How many sounds? "Listen, I will say a sound, k. Tell me when you hear k again. Ready?"

k - s, k

p - m, t, p

f - d, z, h, f

2. Digits (two per second)

6-1 ____; 4-0 ____; 8-3-6 ____; 9-2-0 ____; 5-2-8-1 ____;

0-6-9-1 ____; 2-9-3-8-1 ____; 3-1-9-6-4 ____

6

Inventory of Language Processes, continued

2. Words

a) Fine differences

ten - pen _____ bat - hat _____

fine - sign _____ see - bee _____

key - key _____ cap - tap _____

b) Gross differences (same or different?)

boy - cab _____ house - house _____

top - pat _____ people - money _____

king - cake _____ size - size _____

3. Sentences (same or different?)

The weather is cold. - The boy has a cold. _____

The cat eats. - The cats eat. _____

The boys run. - The boy runs. _____

The babies cry. - The baby cries. _____

Birds can fly. - Birds can fly. _____

C. Blending - Show me

1. cow-boy 3. f-a-t 5. d-e-s-k

2. bl-ack 4. h-ou-se

10

IV. Visual Skills

A. Matching

1. Pictures of objects

2. Forms and shapes (nonmeaningful material)

gross differences _____

fine differences _____

11

Inventory of Language Processes, continued

C. Revisualization

1. Make forms and letters when removed from sight

2. Make numbers and letter combinations when removed from sight

3. Make forms, numbers, and letters when name of form, number, or letter is given

D. Gross Motor: Ask child to hop, skip, and jump. Demonstrate if necessary.

15

3. Letters

gross differences

fine differences

4. Groups of letters

gross differences

fine differences

5. Words

gross differences

fine differences.

12

Inventory of Language Processes, continued

VI. Number Concepts

A. Match sets.

B. Rote counting.

C. Name number symbols

D. Match symbols to sets

16

- B. Visual Memory (Indicate number of items retained in each category and type of error. Do not require the child to draw or write his responses. Let him manipulate materials to indicate his answer.)

1. Pictures of objects
2. Forms and shapes
3. Numbers
4. Letters
5. Words

- C. General description of child's ability to attend to visual material. Evidence of visual distractibility? Do verbal responses indicate possible perceptual difficulties?

V. Motor

- A. Use of crayons and scissors - color and cut shapes (for children four and under only)

B. Copying

1. Forms
2. Letters

13

14

Inventory of Language Processes, concluded

- E. Operations (addition, subtraction, multiplication, division)

F. Size Concepts

larger ___ smaller ___ long ___ short ___ greater ___
less ___

17